

Service Manual

Pioneer

ORDER NO.
CRT2334

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P2000

X1M/UC

DEH-P20

X1M/UC

DEH-P2050

X1M/ES



- This additional service manual is designed to be used together with Model DEH-P2000/X1N/UC, DEH-P20/X1N/UC and DEH-P2050/X1N/ES Service Manual CRT2311. Refer to it for finding parts numbers and adjustment, etc. which are not shown in this manual.

EXPLODED VIEWS AND PARTS LIST

PACKING(Page 2)

● PACKING SECTION PARTS LIST

* : Non spear part

Mark	No.	Description	Part No.	
			DEH-P2000/X1N/UC	DEH-P2000/X1M/UC
	14	Carton	CHG3657	CHG3649
	15	Contain Box	CHL3657	CHL3649

Mark	No.	Description	Part No.	
			DEH-P20/X1N/UC	DEH-P20/X1M/UC
	14	Carton	CHG3656	CHG3648
	15	Contain Box	CHL3656	CHL3648

Mark	No.	Description	Part No.	
			DEH-P2050/X1N/ES	DEH-P2050/X1M/ES
	14	Carton	CHG3659	CHG3651
	15	Contain Box	CHL3659	CHL3651

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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DEH-P2000,P20,P2050

EXTERIOR

● EXTERIOR SECTION PARTS LIST(Page 5)

Mark	No.	Description	Part No.	
			DEH-P2000/X1N/UC	DEH-P2000/X1M/UC
	12	Holder	CNC6798	* CNC7567
	17	Insulator	CNM6006	CNM6386

● EXTERIOR SECTION PARTS LIST(Page 7)

Mark	No.	Description	Part No.	
			DEH-P20/X1N/UC	DEH-P20/X1M/UC
	12	Holder	CNC6798	* CNC7567
	17	Insulator	CNM6006	CNM6386

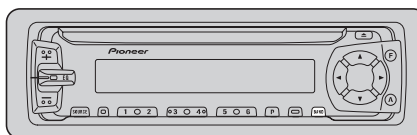
● EXTERIOR SECTION PARTS LIST(Page 9)

Mark	No.	Description	Part No.	
			DEH-P2050/X1N/ES	DEH-P2050/X1M/ES
	12	Holder	CNC6798	* CNC7567
	17	Insulator	CNM6006	CNM6386

Service Manual

Pioneer

DEH-P2000/X1N/UC



ORDER NO.
CRT2311

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P2000

X1N/UC

DEH-P20

X1N/UC

DEH-P2050

X1N/ES,ES

COMPACT
disc
DIGITAL AUDIO

- See the separate manual CX-916(CRT2300) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of S8 series.

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● CD Player Service Precautions

1. For pickup unit(CXX1285) handling, please refer to "Disassembly"(CX-916 Service Manual CRT2300).
During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).

2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 47).

1. SAFETY INFORMATION

CAUTION

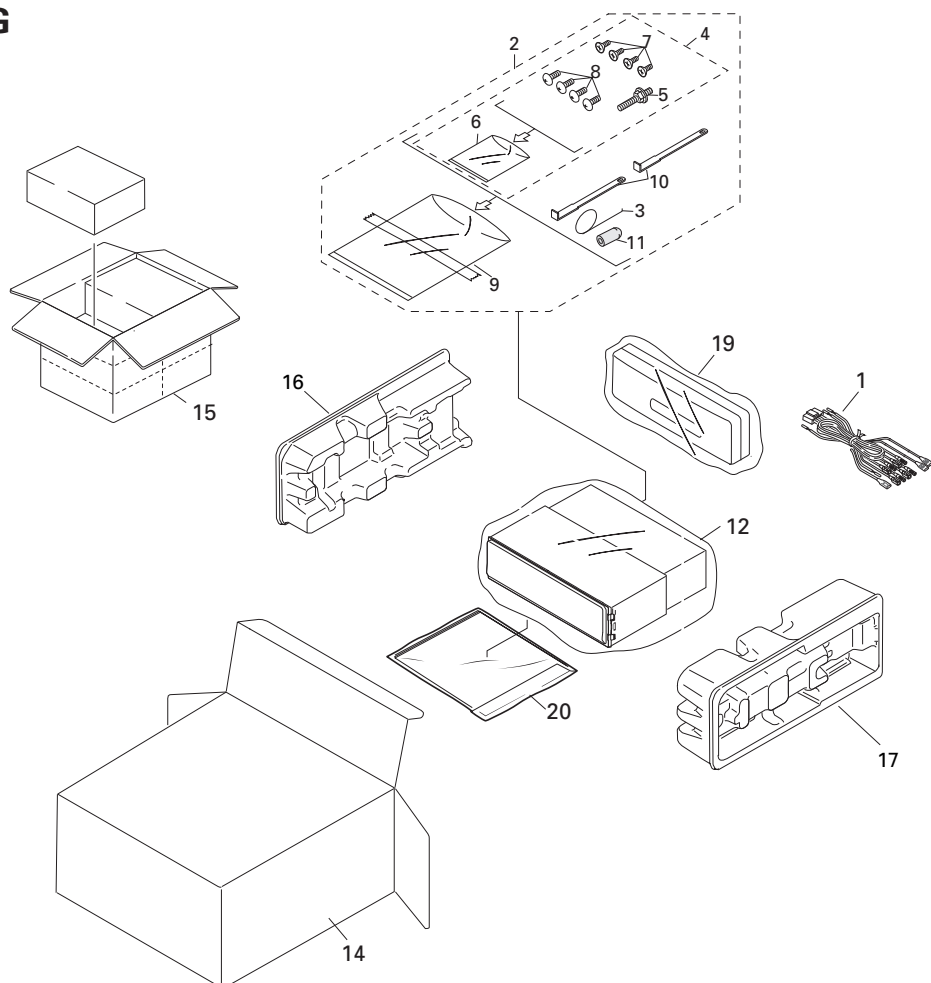
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" and ⊗ can not be supplied.
- Screws adjacent to ∇ mark on the product are used for disassembly.

(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
	1 Cord Assy	CDE5874	16 Protector	CHP2101	
*	2 Accessory Assy	CEA2395	17 Protector	CHP2102	
	3 Spring	CBH1650	18		
	4 Screw Assy	CEA2396	19 Case Assy	CXB3520	
	5 Screw	CBA1002	20-1 Owner's Manual	See Contrast table(2)	
*	6 Polyethylene Bag	CEG-127	20-2 Owner's Manual	See Contrast table(2)	
	7 Screw	CRZ50P090FMC	20-3 Installation Manual	See Contrast table(2)	
	8 Screw	TRZ50P080FMC	20-4 Polyethylene Bag	CEG1116	
*	9 Polyethylene Bag	CEG-158	* 20-5 Card	See Contrast table(2)	
	10 Handle	CNC5395			
	11 Bush	CNV3930			
	12 Polyethylene Bag	See Contrast table(2)			
	13				
	14 Carton	See Contrast table(2)			
	15 Contain Box	See Contrast table(2)			

(2) CONTRAST TABLE

DEH-P2000/X1N/UC, DEH-P20/X1N/UC, DEH-P2050/X1N/ES and DEH-P2050/ES are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.			
		DEH-P2000/X1N/UC	DEH-P20/X1N/UC	DEH-P2050/X1N/ES	DEH-P2050/ES
	12 Polyethylene Bag	CEG1173	CEG1173	CEG-162	CEG-162
	14 Carton	CHG3657	CHG3656	CHG3659	CHG3762
	15 Contain Box	CHL3657	CHL3656	CHL3659	CHL3762
	20-1 Owner's Manual	CRD2851	CRD2851	CRD2855	CRD2855
	20-2 Owner's Manual	Not used	Not used	CRD2856	CRD2856
	20-3 Installation Manual	CRD2852	CRD2852	CRD2857	CRD2857
*	20-5 Card	ARY1048	ARY1048	Not used	Not used

● Owner's Manual

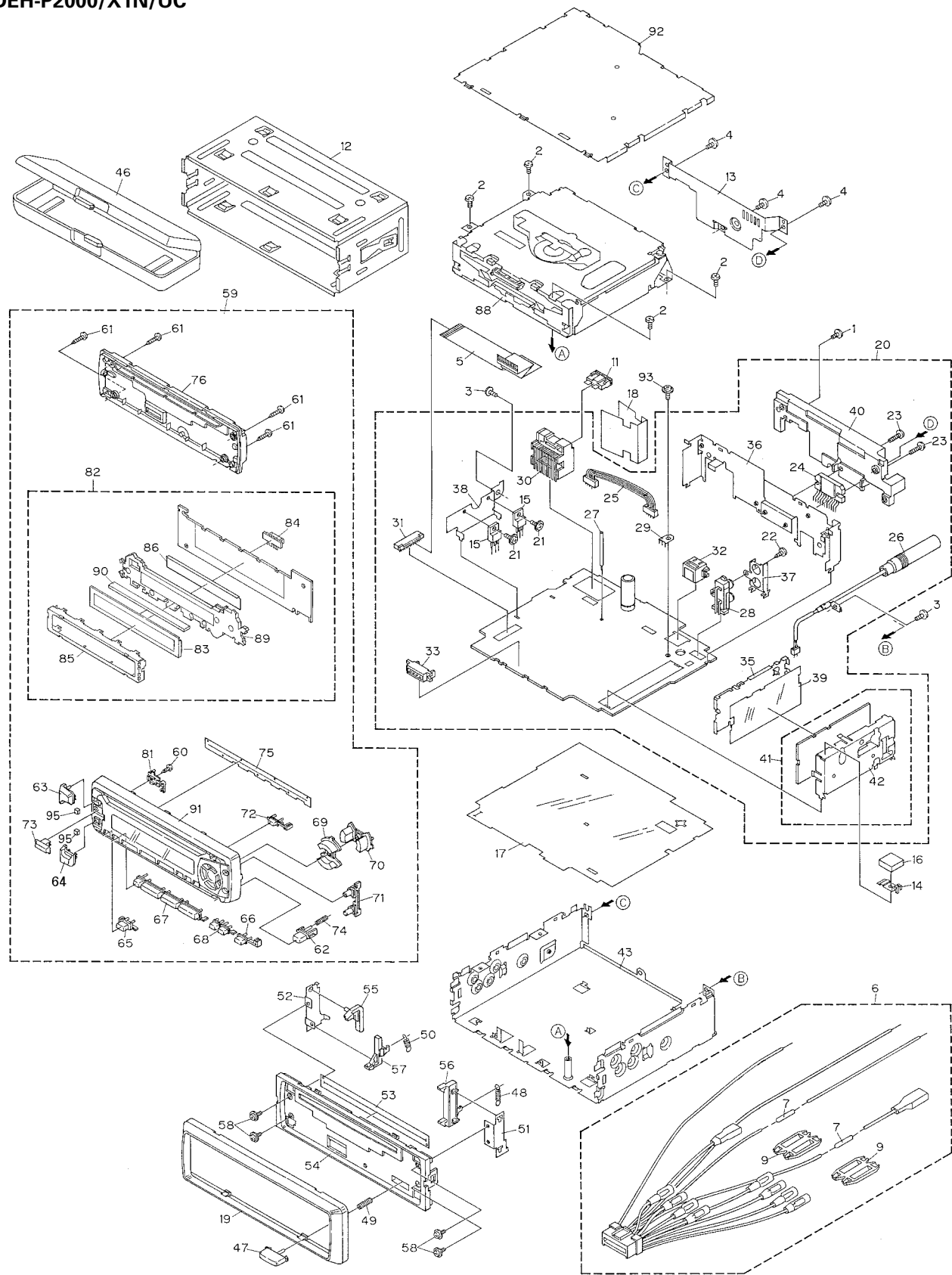
Model	Part No.	Language
DEH-P2000/X1N/UC, DEH-P20/X1N/UC	CRD2851	English, French, Spanish
DEH-P2050/X1N/ES, DEH-P2050/ES	CRD2855	English, Spanish, Portuguese
	CRD2856	Arabic, Chinese

● Installation Manual

Model	Part No.	Language
DEH-P2000/X1N/UC, DEH-P20/X1N/UC	CRD2852	English, French, Spanish
DEH-P2050/X1N/ES, DEH-P2050/ES	CRD2857	English, Spanish, Portuguese, Arabic, Chinese

2.2 EXTERIOR

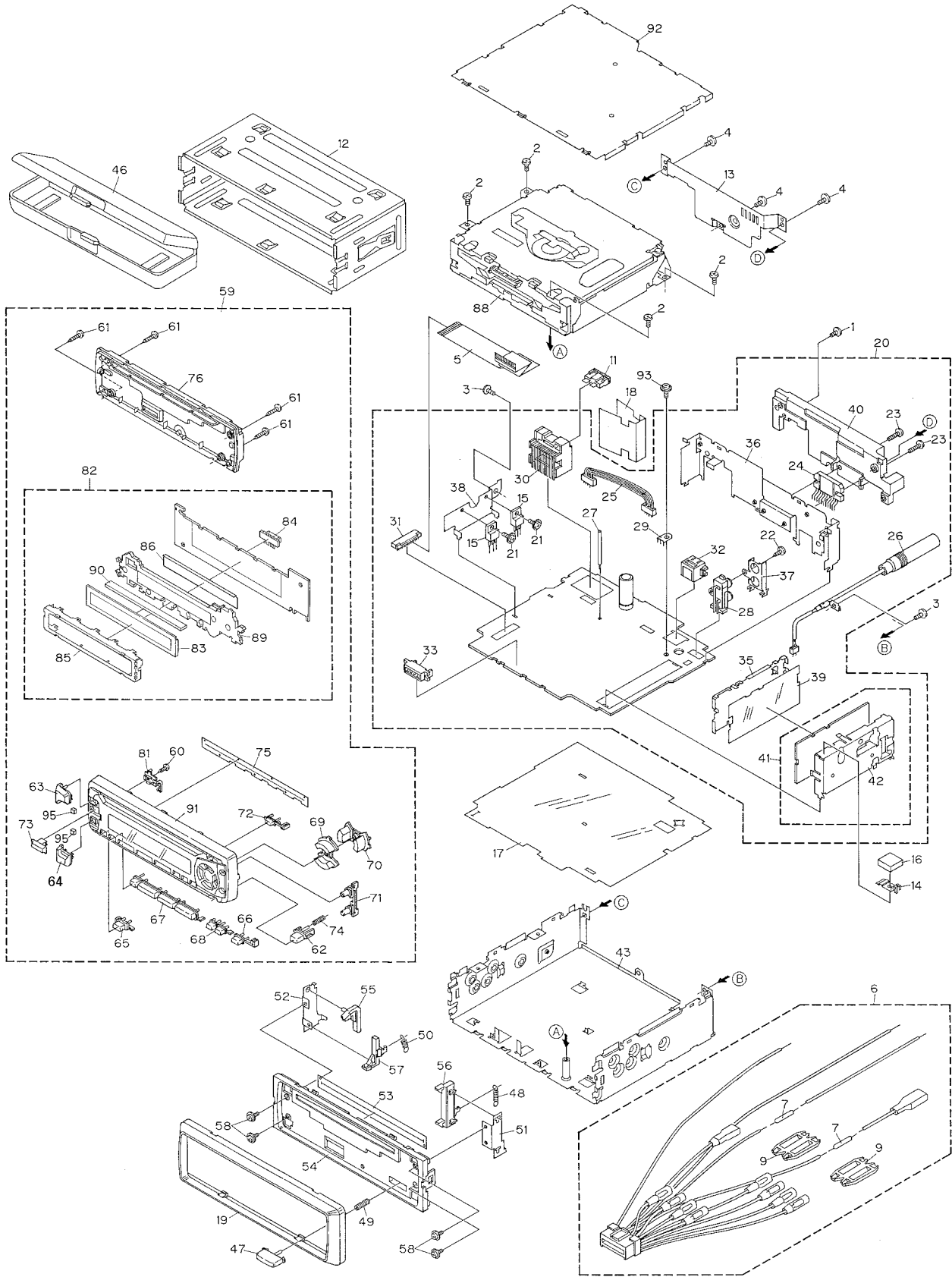
● DEH-P2000/X1N/UC



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ26P120FMC	51	Bracket	CNC6791
2	Screw	BSZ26P060FMC	52	Holder	CNC8042
3	Screw	BSZ30P060FMC	53	Cover	CNM6276
4	Screw	BSZ30P120FMC	54	Panel	CNS5355
5	Cable	CDE6018	55	Arm	CNV4692
6	Cord Assy	CDE5874	56	Arm	CNV4728
7	Resistor	RS1/2PMF102J	57	Arm	CNV5576
8	.....		58	Screw	IMS20P030FZK
9	Cap	CNS1472	59	Detach Grille Assy	CXB3607
10	.....		60	Screw	BPZ20P060FMC
11	Fuse(10A)	CEK1136	61	Screw	BPZ20P100FZK
12	Holder	CNC6798	62	Button(DETACH)	CAC5789
13	Cover	CNC8367	63	Button(+)	CAC5834
14	Earth Plate	CNC8368	64	Button(-)	CAC5837
15	Transistor(Q981,991)	2SD2396	65	Button(SOURCE)	CAC5983
16	Spacer	CNM4913	66	Button(BAND)	CAC5984
17	Insulator	CNM6006	67	Button(1-6)	CAC5840
18	Insulator	CNM6224	68	Button(PGM,CL)	CAC5841
19	Panel	CNS5132	69	Button(UP,DOWN)	CAC5846
⊗ 20	Tuner Amp Unit	CWM6085	70	Button(<,>)	CAC5849
21	Screw	ASZ26P080FMC	71	Button(F,A)	CAC5852
22	Screw	BPZ26P080FMC	72	Button(EJECT)	CAC5853
23	Screw	BSZ26P160FMC	73	Button(EQ)	CAC6132
24	IC(IC551)	PAL005A	74	Spring	CBH2210
25	Connector(CN551)	CDE5996	75	Cover	CNM6290
26	Antenna Cable(CN502)	CDH1254	76	Cover	CNS5187
27	Clamper	CEF1006	77	.....
28	Pin Jack(CN431)	CKB1028	78	.....
29	Terminal(CN501)	CKF1059	79	.....
30	Connector(CN951)	CKM1299	80	.....
* 31	Connector(CN681)	CKS2227	81	Housing	CNV5575
32	Connector(CN411)	CKS3408	82	Keyboard Unit	CWM6098
33	Connector(CN651)	CKS3581	83	LCD(LCD1801)	CAW1500
34	.....		84	Connector(CN1801)	CKS3580
35	Holder	CNC7533	85	Holder	CNC8036
36	Holder	CNC8039	86	Sheet	CNM6026
37	Holder	CNC8041	87	.....
38	Holder	CNC8043	88	CD Mechanism Module	CXK5200
39	Insulator	CNM5967	89	Lighting Conductor	CNV5570
40	Heat Sink	CNR1506	90	Connector	CNV5571
41	FM/AM Tuner Unit	CWE1501	91	Grille Unit	CXB3496
42	Holder	CNC7532	92	Case Unit	CXB4033
43	Chassis Unit	CXB3167	93	Screw	ISS26P055FUC
44	.....		94	.....
45	.....		95	Cushion	CNM6373
46	Case Assy	CXB3520			
47	Button	CAC4836			
48	Spring	CBH1835			
49	Spring	CBH1996			
50	Spring	CBH2208			

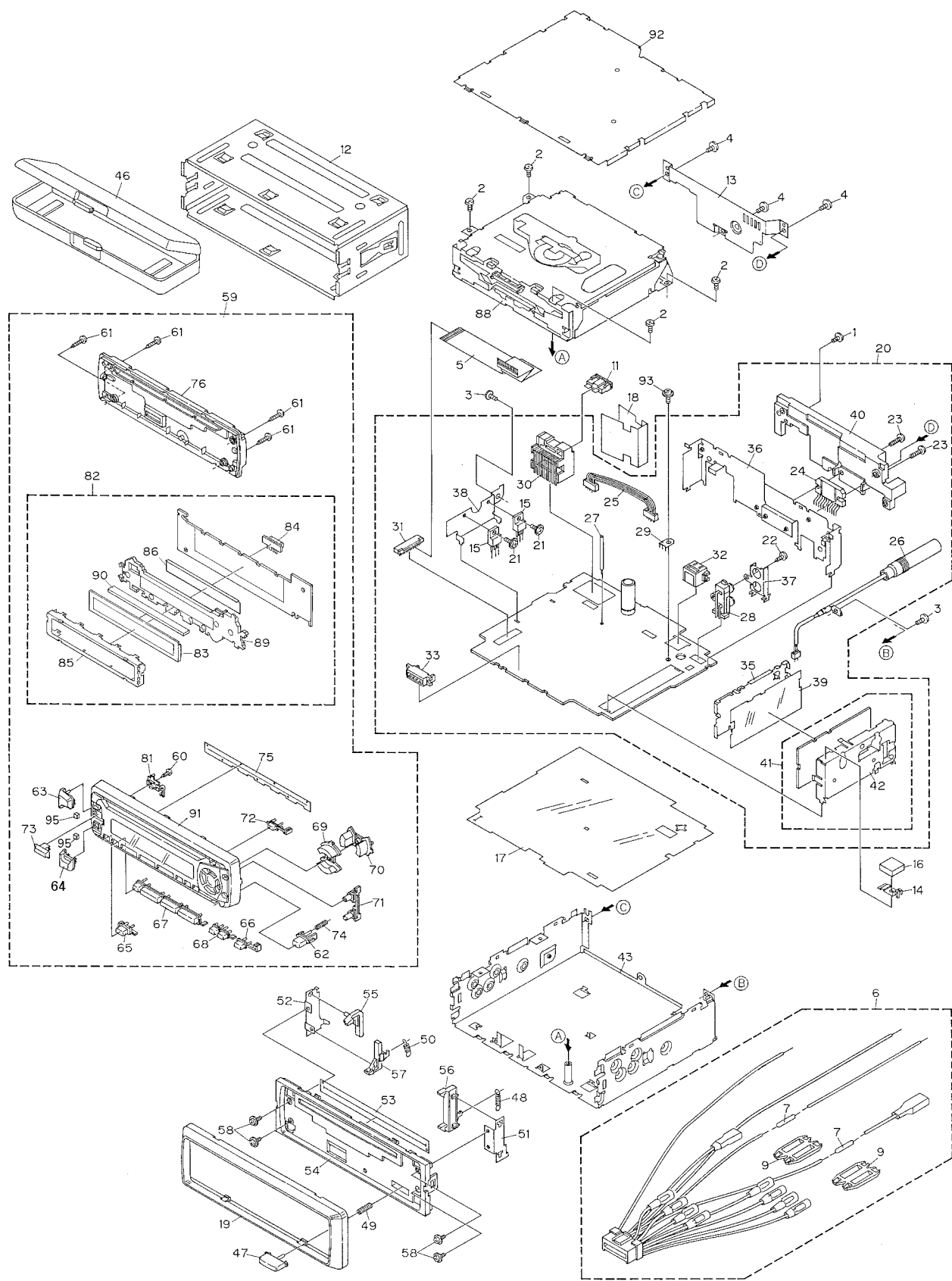
● DEH-P20/X1N/UC



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ26P120FMC	51	Bracket	CNC6791
2	Screw	BSZ26P060FMC	52	Holder	CNC8042
3	Screw	BSZ30P060FMC	53	Cover	CNM6276
4	Screw	BSZ30P120FMC	54	Panel	CNS5355
5	Cable	CDE6018	55	Arm	CNV4692
6	Cord Assy	CDE5874	56	Arm	CNV4728
7	Resistor	RS1/2PMF102J	57	Arm	CNV5576
8	.....		58	Screw	IMS20P030FZK
9	Cap	CNS1472	59	Detach Grille Assy	CXB3606
10	.....		60	Screw	BPZ20P060FMC
11	Fuse(10A)	CEK1136	61	Screw	BPZ20P100FZK
12	Holder	CNC6798	62	Button(DETACH)	CAC5789
13	Cover	CNC8367	63	Button(+)	CAC5834
14	Earth Plate	CNC8368	64	Button(-)	CAC5837
15	Transistor(Q981,991)	2SD2396	65	Button(SOURCE)	CAC5983
16	Spacer	CNM4913	66	Button(BAND)	CAC5984
17	Insulator	CNM6006	67	Button(1-6)	CAC5840
18	Insulator	CNM6224	68	Button(PGM,CL)	CAC5841
19	Panel	CNS5132	69	Button(UP,DOWN)	CAC5846
⊗ 20	Tuner Amp Unit	CWM6085	70	Button(<,>)	CAC5849
21	Screw	ASZ26P080FMC	71	Button(F,A)	CAC5852
22	Screw	BPZ26P080FMC	72	Button(EJECT)	CAC5853
23	Screw	BSZ26P160FMC	73	Button(EQ)	CAC6132
24	IC(IC551)	PAL005A	74	Spring	CBH2210
25	Connector(CN551)	CDE5996	75	Cover	CNM6290
26	Antenna Cable(CN502)	CDH1254	76	Cover	CNS5187
27	Clamper	CEF1006	77	.....
28	Pin Jack(CN431)	CKB1028	78	.....
29	Terminal(CN501)	CKF1059	79	.....
30	Connector(CN951)	CKM1299	80	.....
* 31	Connector(CN681)	CKS2227	81	Housing	CNV5575
32	Connector(CN411)	CKS3408	82	Keyboard Unit	CWM6095
33	Connector(CN651)	CKS3581	83	LCD(LCD1801)	CAW1500
34	.....		84	Connector(CN1801)	CKS3580
35	Holder	CNC7533	85	Holder	CNC8036
36	Holder	CNC8039	86	Sheet	CNM6026
37	Holder	CNC8041	87	.....
38	Holder	CNC8043	88	CD Mechanism Module	CXK5200
39	Insulator	CNM5967	89	Lighting Conductor	CNV5570
40	Heat Sink	CNR1506	90	Connector	CNV5571
41	FM/AM Tuner Unit	CWE1501	91	Grille Unit	CXB3495
42	Holder	CNC7532	92	Case Unit	CXB4033
43	Chassis Unit	CXB3167	93	Screw	ISS26P055FUC
44	.....		94	.....
45	.....		95	Cushion	CNM6373
46	Case Assy	CXB3520			
47	Button	CAC4836			
48	Spring	CBH1835			
49	Spring	CBH1996			
50	Spring	CBH2208			

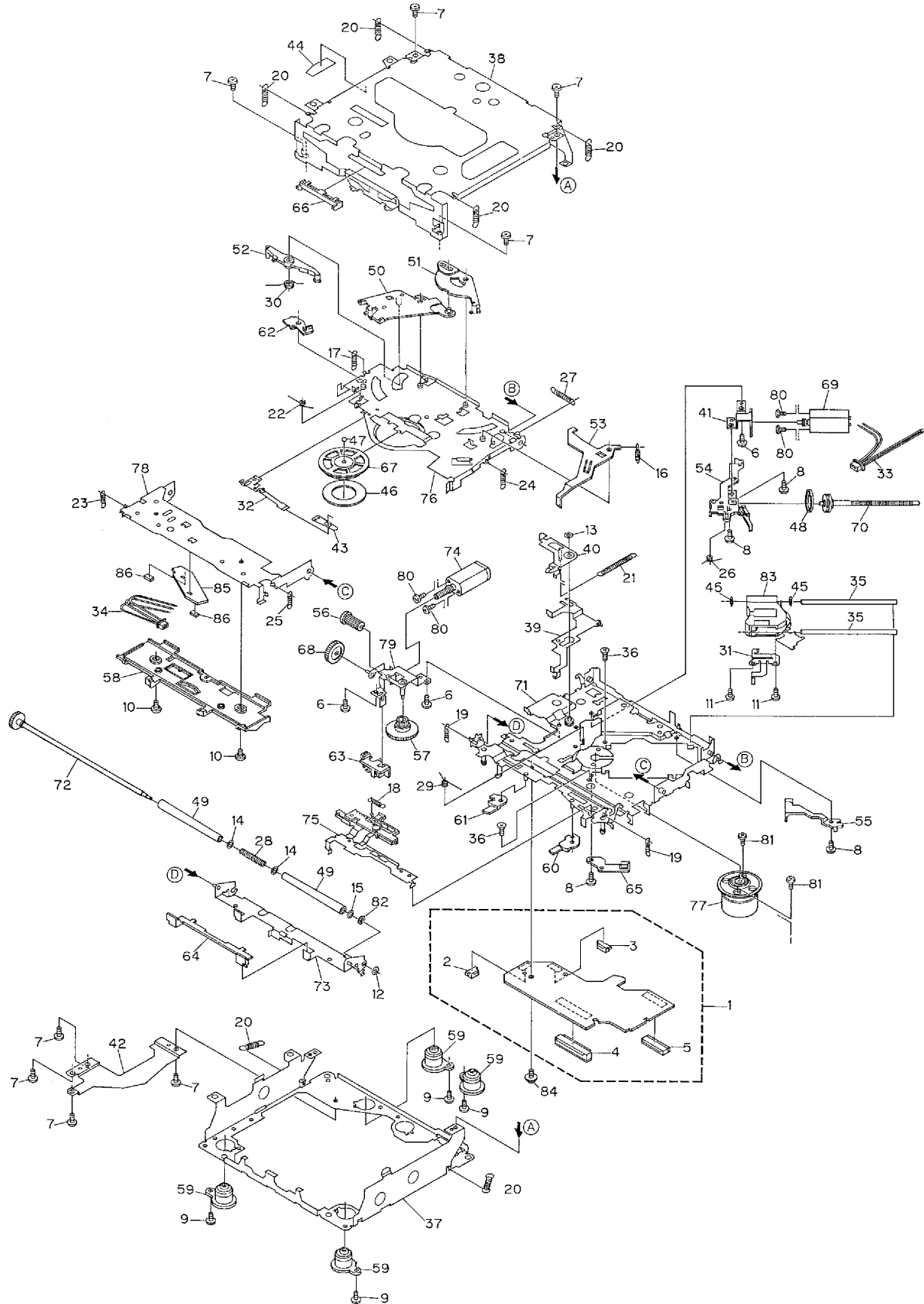
● DEH-P2050/X1N/ES, DEH-P2050/ES



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ26P120FMC	49	Spring	CBH1996
2	Screw	BSZ26P060FMC	50	Spring	CBH2208
3	Screw	BSZ30P060FMC	51	Bracket	CNC6791
4	Screw	BSZ30P120FMC	52	Holder	CNC8042
5	Cable	CDE6018	53	Cover	CNM5355
6	Cord Assy	CDE5874	54	Panel	CNS5355
7	Resistor	RS1/2PMF102J	55	Arm	CNV4692
8	.....		56	Arm	CNV4728
9	Cap	CNS1472	57	Arm	CNV5576
10	.....		58	Screw	IMS20P030FZK
11	Fuse(10A)	CEK1136	59	Detach Grille Assy	CXB3613
12	Holder	CNC6798	60	Screw	BPZ20P060FMC
13	Cover	CNC8367	61	Screw	BPZ20P100FZK
14	Earth Plate	CNC8368	62	Button(DETACH)	CAC5789
15	Transistor(Q981,991)	2SD2396	63	Button(+)	CAC5834
16	Spacer	CNM4913	64	Button(-)	CAC5837
17	Insulator(DEH-P2050/X1N/ES)	CNM6006	65	Button(SOURCE)	CAC5983
	Insulator(DEH-P2050/ES)	CNM6386	66	Button(BAND)	CAC5984
18	Insulator	CNM6224	67	Button(1-6)	CAC5840
19	Panel	CNS5132	68	Button(PGM,CL)	CAC5841
⊗ 20	Tuner Amp Unit	CWM6090	69	Button(UP,DOWN)	CAC5846
21	Screw	ASZ26P080FMC	70	Button(<,>)	CAC5849
22	Screw	BPZ26P080FMC	71	Button(F,A)	CAC5852
23	Screw	BSZ26P160FMC	72	Button(EJECT)	CAC5853
24	IC(IC551)	PAL005A	73	Button(EQ)	CAC6132
25	Connector(CN551)	CDE5996	74	Spring	CBH2210
26	Antenna Cable(CN502)	CDH1254	75	Cover	CNM6290
27	Clamper	CEF1006	76	Cover	CNS5187
28	Pin Jack(CN431)	CKB1028	77	.....
29	Terminal(CN501)	CKF1059	78	.....
30	Connector(CN951)	CKM1299	79	.....
* 31	Connector(CN681)	CKS2227	80	.....
32	Connector(CN411)	CKS3408	81	Housing	CNV5575
33	Connector(CN651)	CKS3581	82	Keyboard Unit	CWM6098
34	.....		83	LCD(LCD1801)	CAW1500
35	Holder	CNC7533	84	Connector(CN1801)	CKS3580
36	Holder	CNC8039	85	Holder	CNC8036
37	Holder	CNC8041	86	Sheet	CNM6026
38	Holder	CNC8043	87	.....
39	Insulator	CNM5967	88	CD Mechanism Module	CXK5200
40	Heat Sink	CNR1506	89	Lighting Conductor	CNV5570
41	FM/AM Tuner Unit	CWE1501	90	Connector	CNV5571
42	Holder	CNC7532	91	Grille Unit	CXB3502
43	Chassis Unit	CXB3167	92	Case Unit	CXB4033
44	.....		93	Screw	ISS26P055FUC
45	.....		94	.....
46	Case Assy	CXB3520	95	Cushion	CNM6373
47	Button(DEH-P2050/X1N/ES)	CAC4836			
	Button(DEH-P2050/ES)	CAC5180			
48	Spring	CBH1835			

2.3 CD MECHANISM MODULE



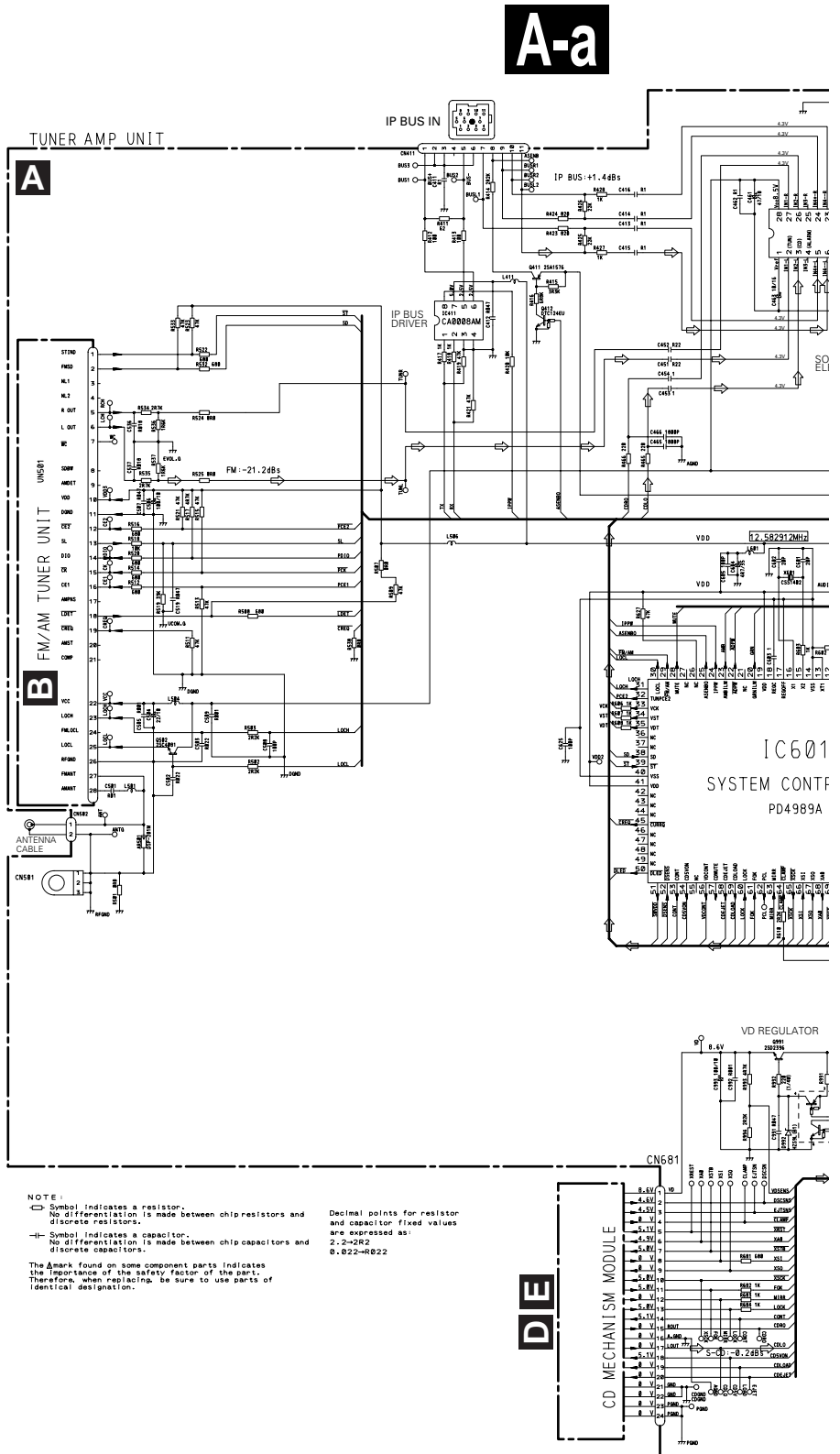
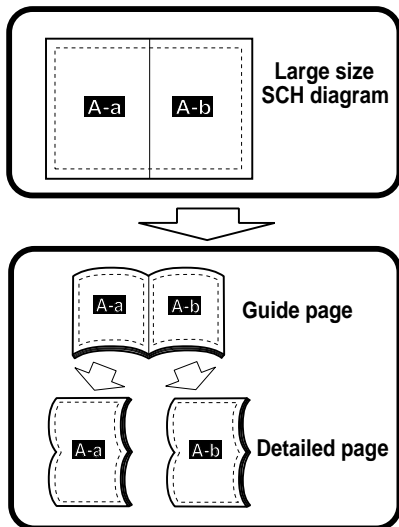
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Control Unit	CWX2344	46	Sheet	CNM6215
2	Connector(CN802)	CKS2192	47	Ball	CNR1189
3	Connector(CN801)	CKS2193	48	Belt	CNT1086
4	Connector(CN701)	CKS2773	49	Roller	CNV4509
5	Connector(CN101)	CKS3486	50	Arm	CNV5246
6	Screw	BMZ20P030FZK	51	Arm	CNV5247
7	Screw	BSZ20P040FZK	52	Arm	CNV5248
8	Screw(M2×3)	CBA1077	53	Arm	CNV5249
9	Screw(M2×6)	CBA1230	54	Guide	CNV5254
10	Screw	CBA1243	55	Guide	CNV5255
11	Screw(M2×4)	CBA1362	56	Gear	CNV5257
12	Washer	CBF1037	57	Gear	CNV5256
13	Washer	CBF1038	58	Guide	CNV5259
14	Washer	CBF1060	59	Damper	CNV5266
* 15	Washer	CBF1075	60	Arm	CNV5359
16	Spring	CBH2079	61	Arm	CNV5360
17	Spring	CBH2117	62	Arm	CNV5361
18	Spring	CBH2082	63	Guide	CNV5509
19	Spring	CBH2110	64	Guide	CNV5510
20	Spring	CBH2111	65	Holder	CNV5578
21	Spring	CBH2114	66	Guide	CNV5751
22	Spring	CBH2115	67	Clamper	CNV5758
23	Spring	CBH2080	68	Gear	CNV5813
24	Spring	CBH2118	69	Motor Unit(M1)	CXB2190
25	Spring	CBH2161	70	Screw Unit	CXB2191
26	Spring	CBH2163	71	Chassis Unit	CXB2192
27	Spring	CBH2189	72	Gear Unit	CXB2193
28	Spring	CBH2249	73	Arm Unit	CXB2194
29	Spring	CBH2260	74	Motor Unit(M2)	CXB2195
30	Spring	CBH2262	75	Lever Unit	CXB2553
31	Spring	CBL1367	76	Arm Unit	CXB2554
32	Spring	CBL1369	77	Motor Unit(M3)	CXB2562
33	Connector	CDE5531	78	Arm Unit	CXB2795
34	Connector	CDE5532	79	Bracket Unit	CXB4071
35	Shaft	CLA3304	80	Screw	JFZ20P025FMC
36	Screw(M2.6×6)	CBA1458	81	Screw	JGZ17P025FZK
37	Frame	CNC7544	82	Washer	YE15FUC
38	Frame	CNC7545	83	Pickup Unit(Service)(P8)	CXX1285
39	Lever	CNC7546	84	Screw	IMS26P030FMC
40	Arm	CNC7739	* 85	PCB	CNX2982
41	Bracket	CNC7798	86	Photo-transistor(Q1, 2)	CPT230SX-TU
42	Plate	CNC8090			
43	Spacer	CNM3315			
44	Sheet	CNM6170			
45	Cushion	CNM6204			

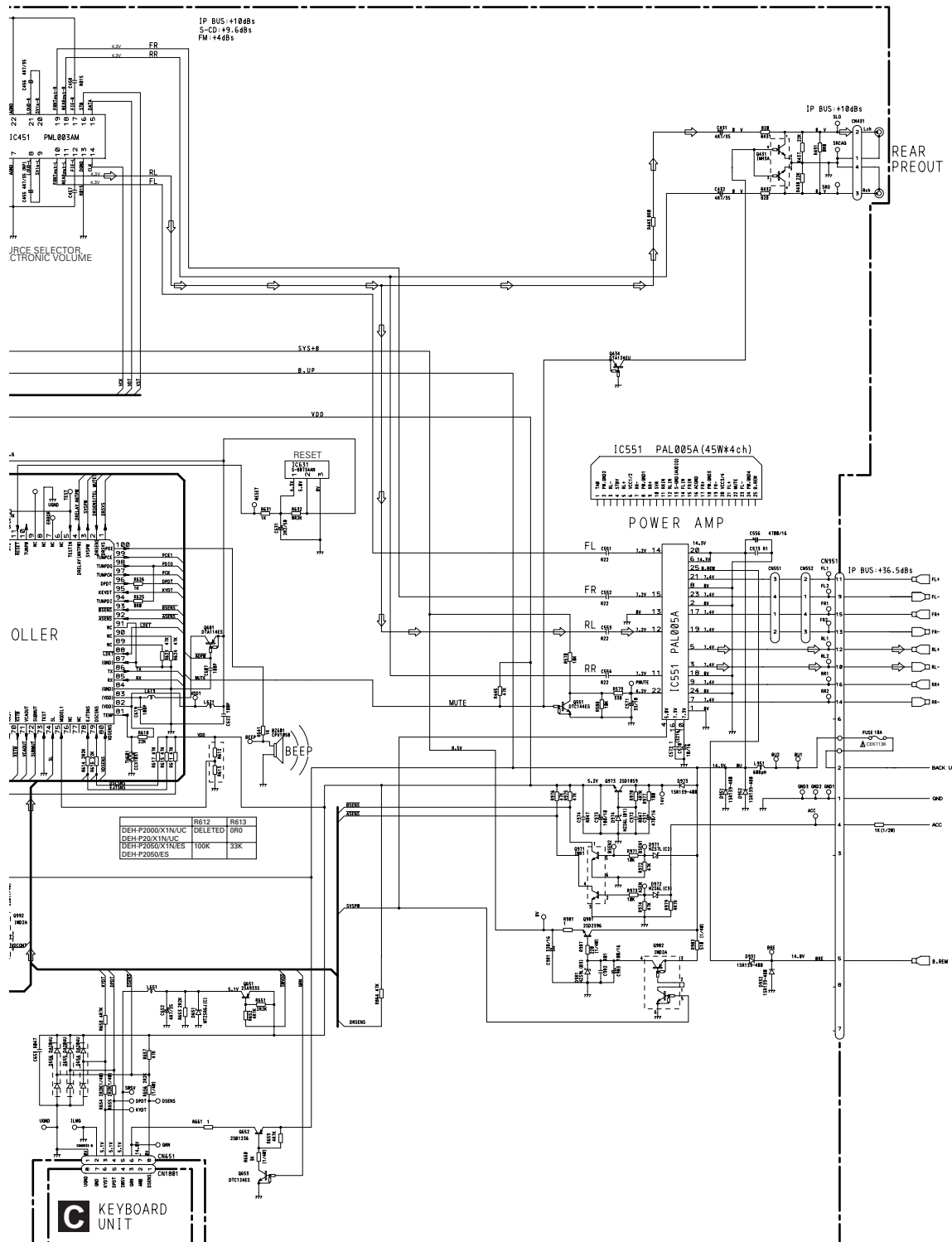
3. SCHEMATIC DIAGRAM

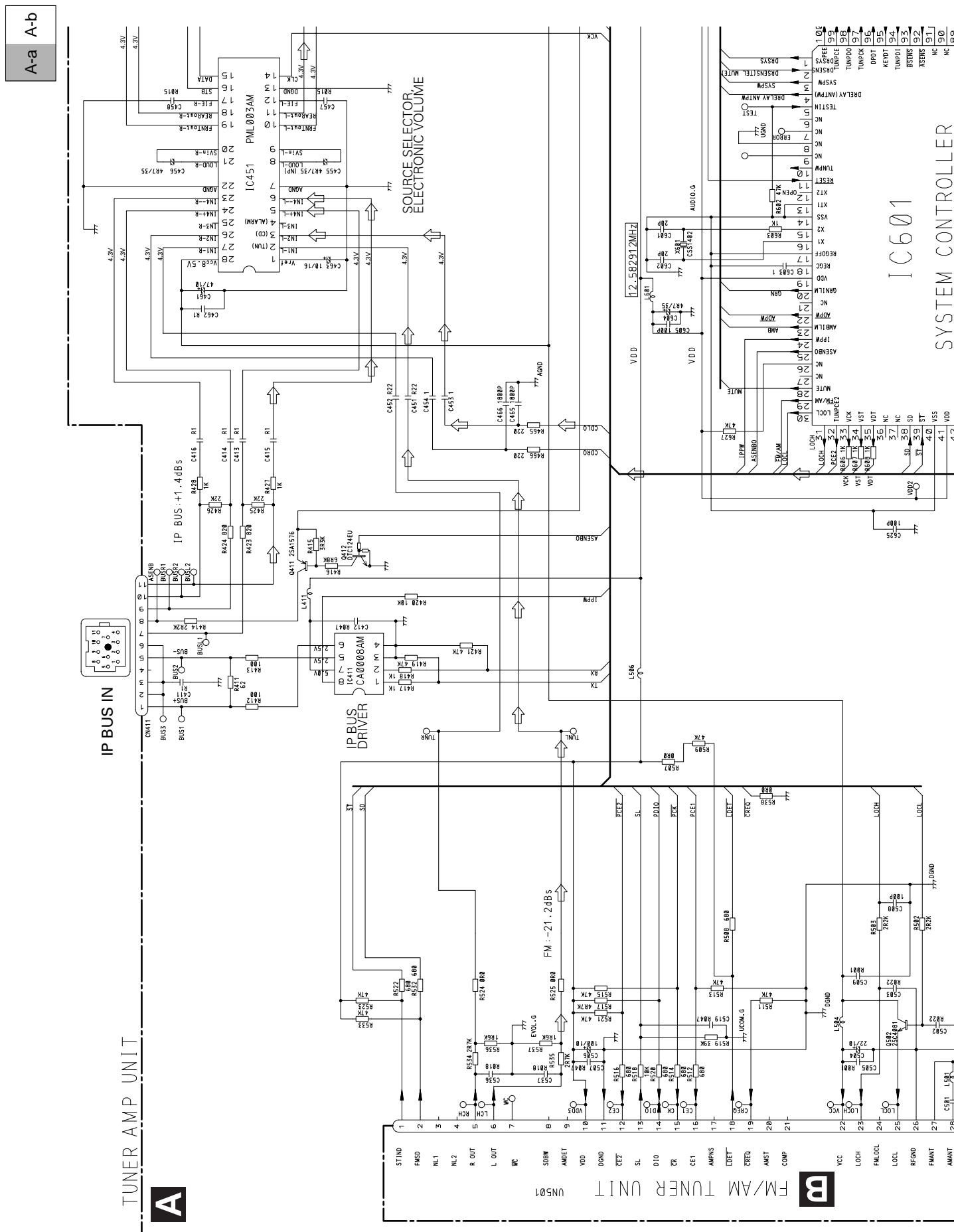
3.1 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

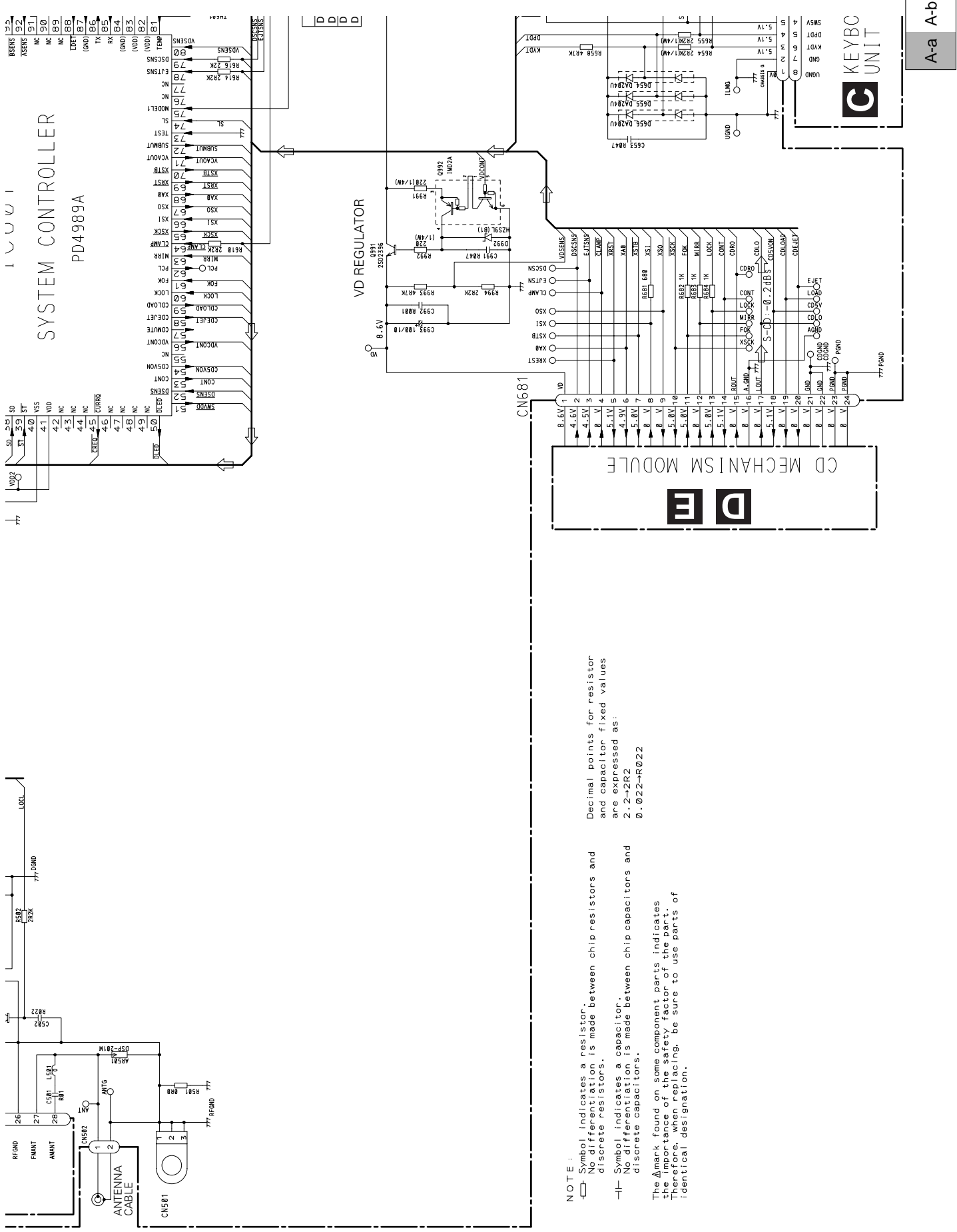
Note: When ordering service parts, be sure to refer to “EXPLODED VIEWS AND PARTS LIST” or “ELECTRICAL PARTS LIST”.



A-b



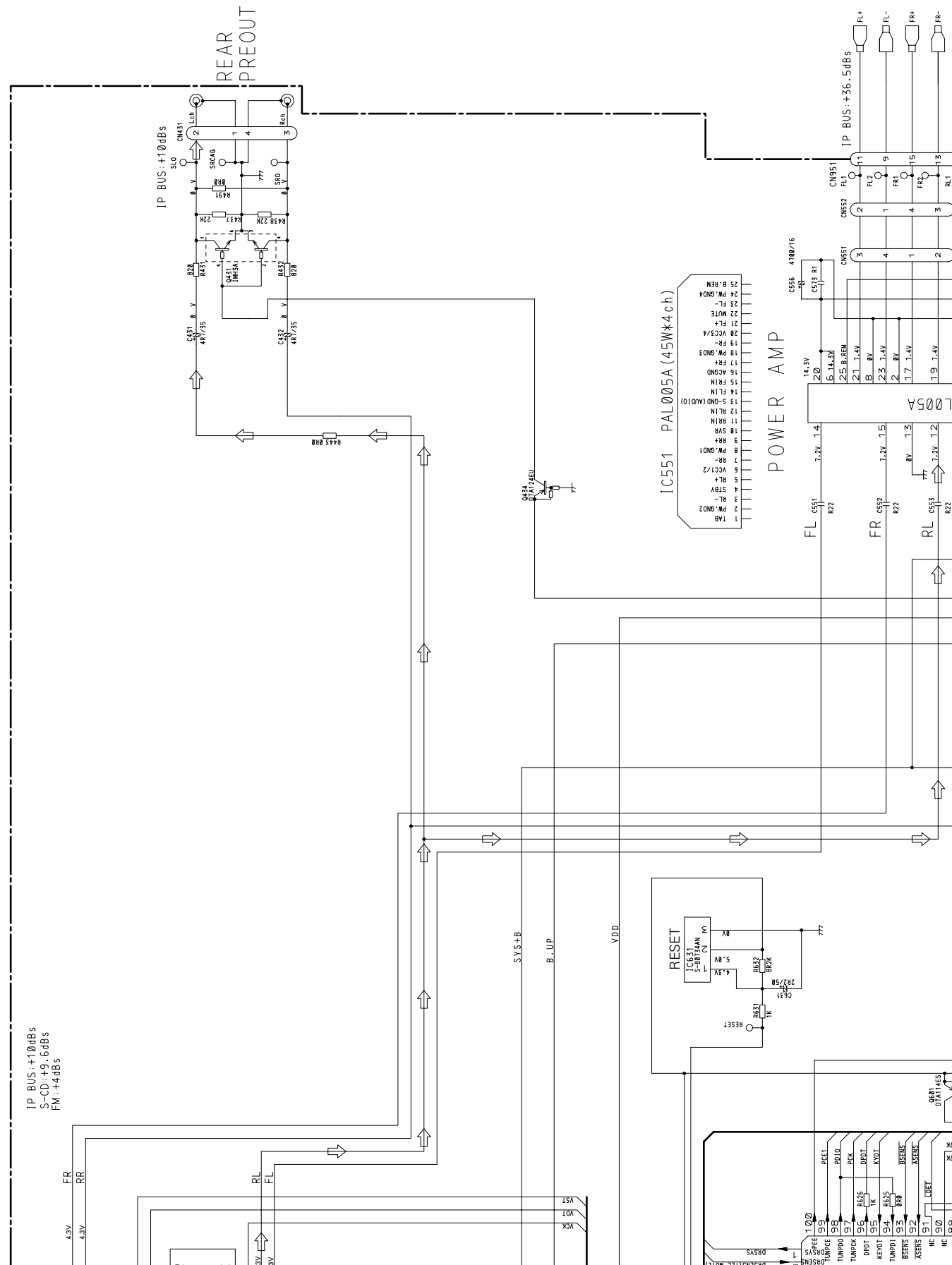


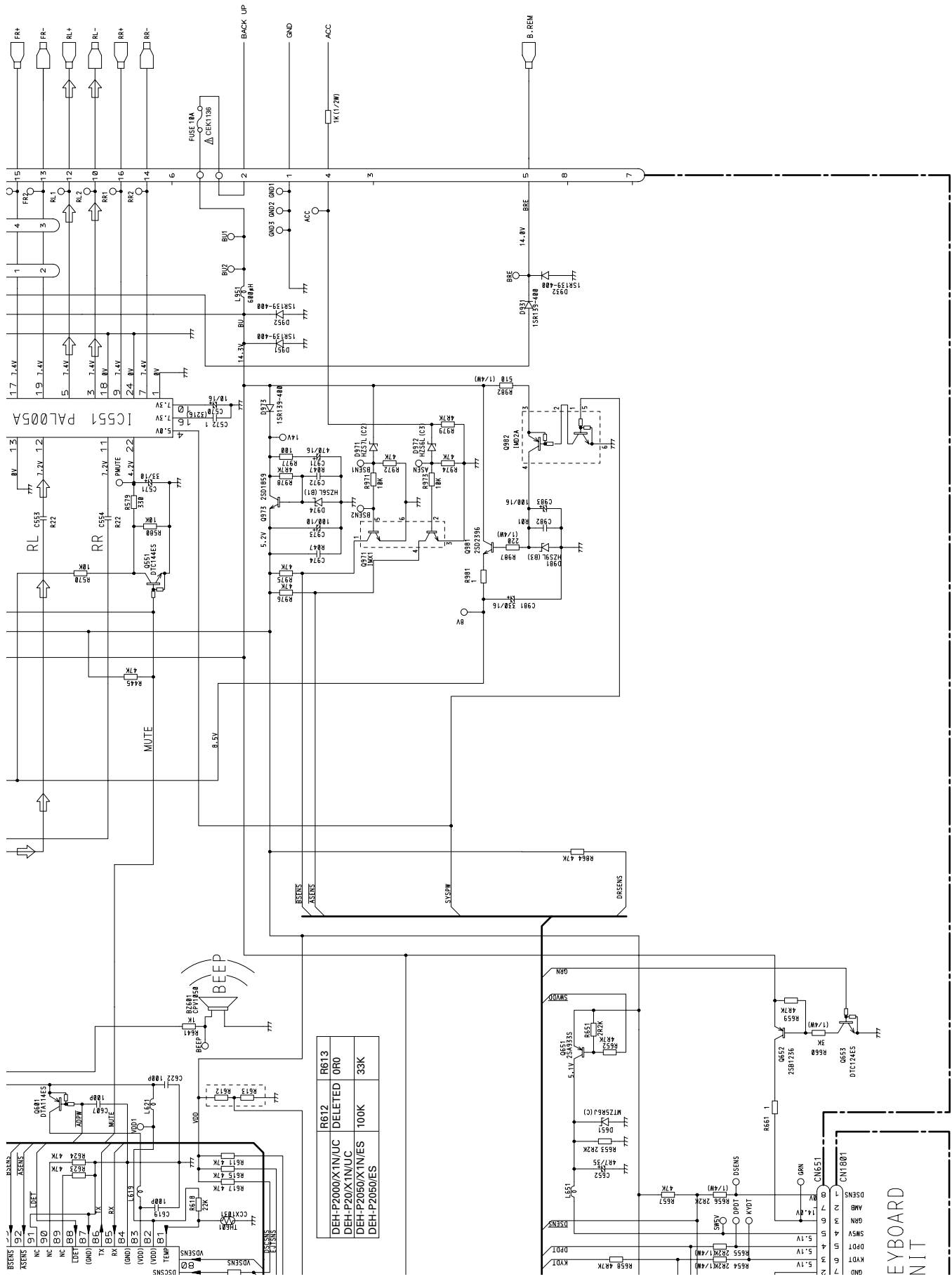


NOTE :

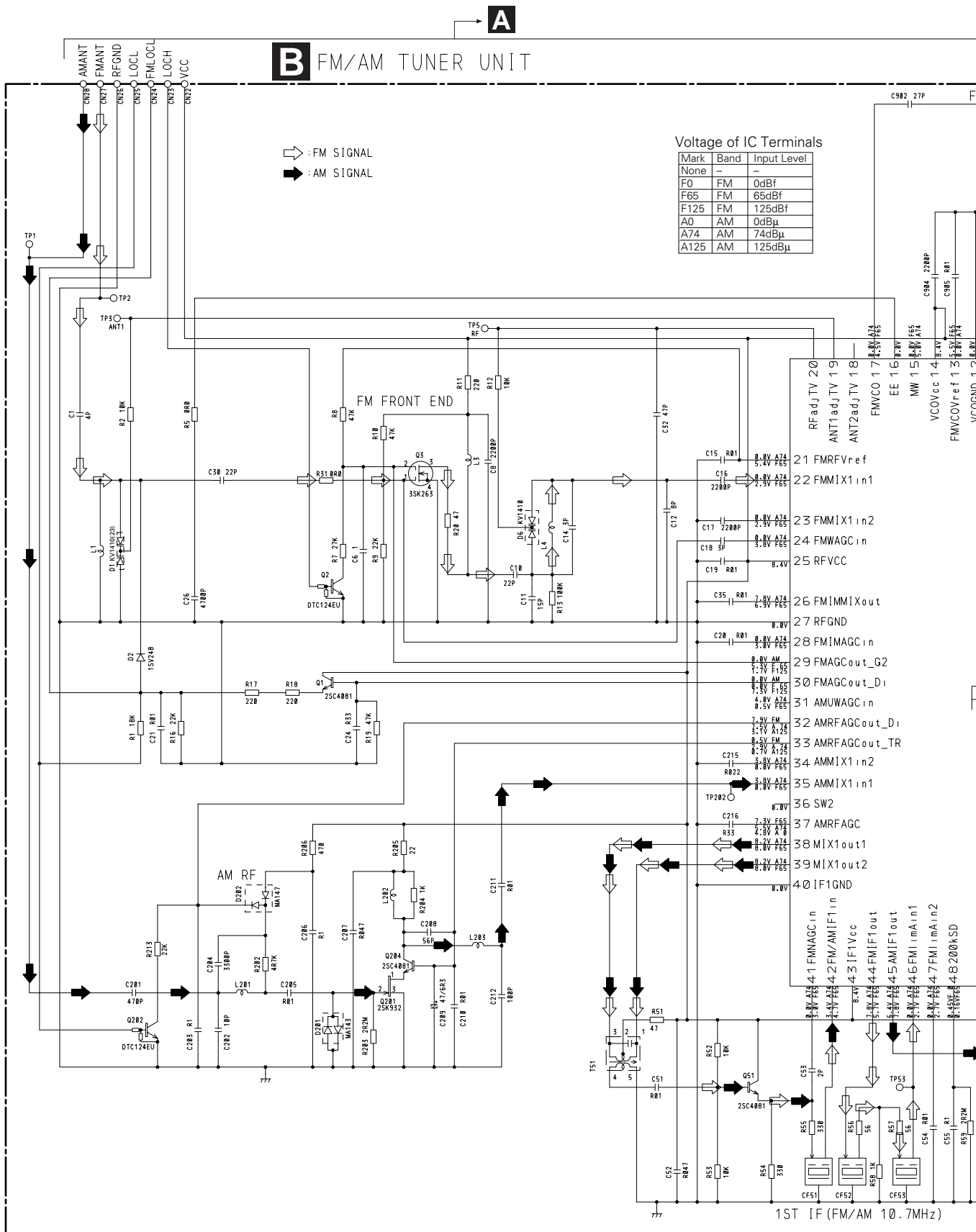
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
- The Δ mark found on some component parts indicates the manufacturer's safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2~2R2
0.022~R022





3.2 FM/AM TUNER UNIT

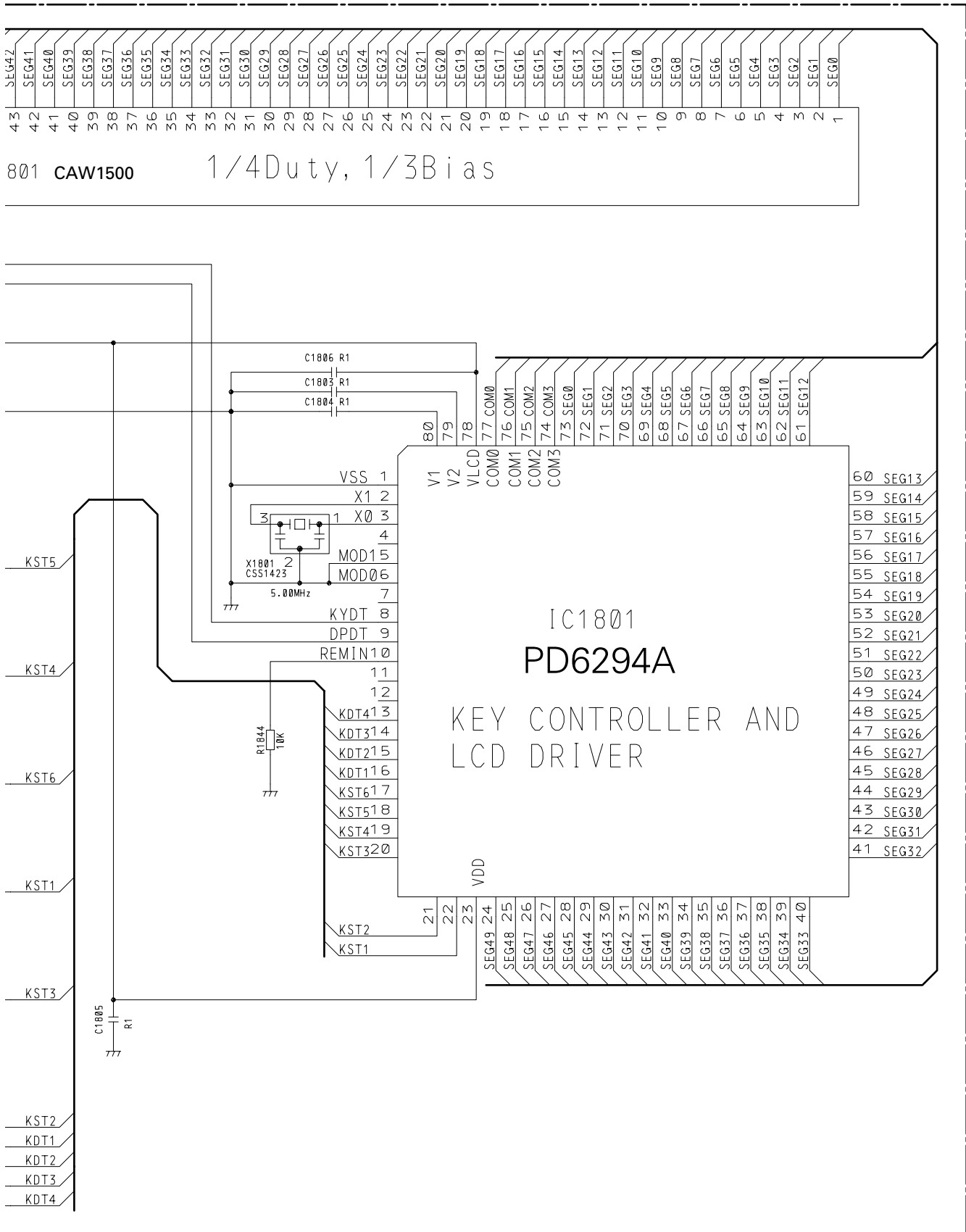




C

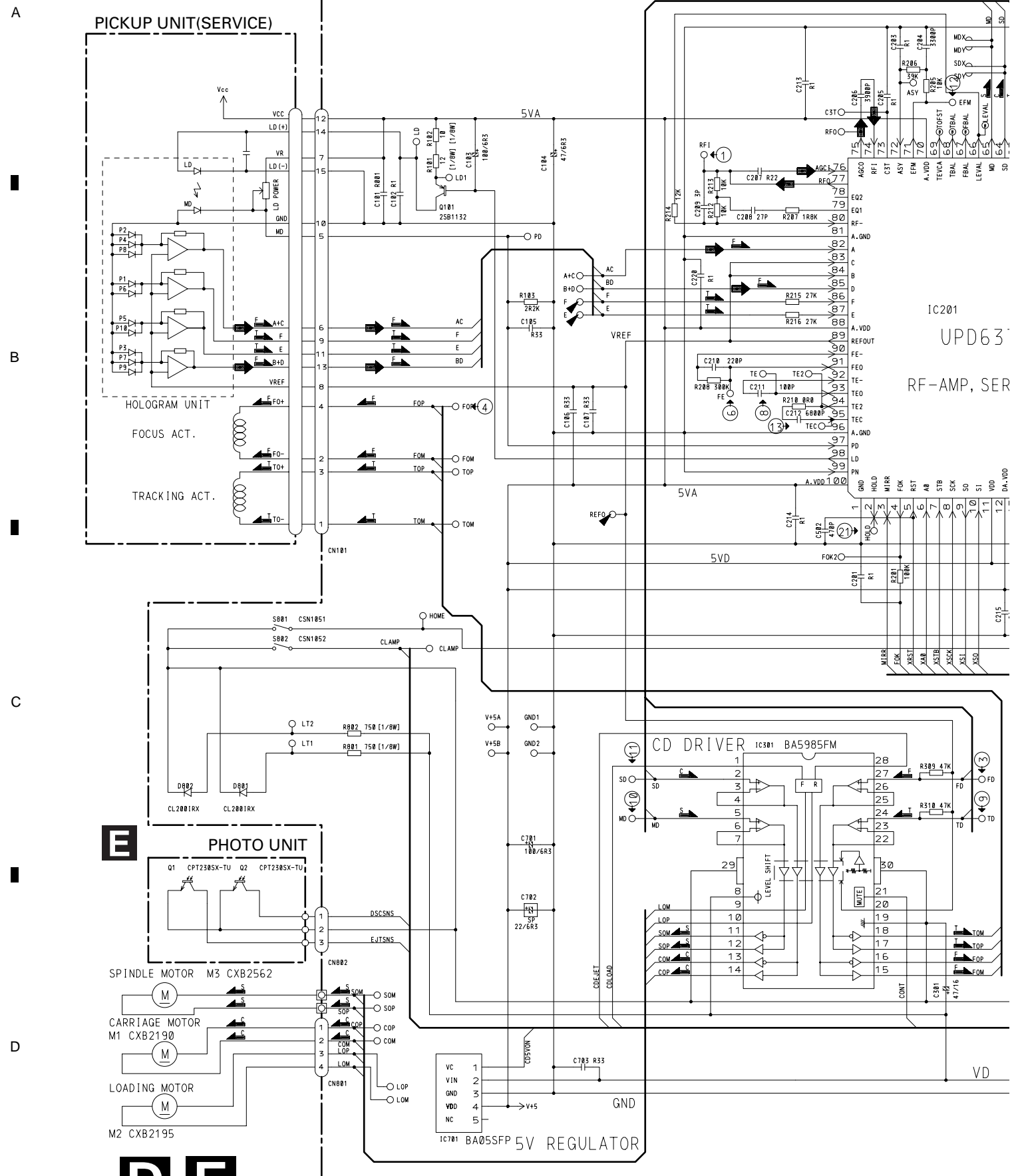
C

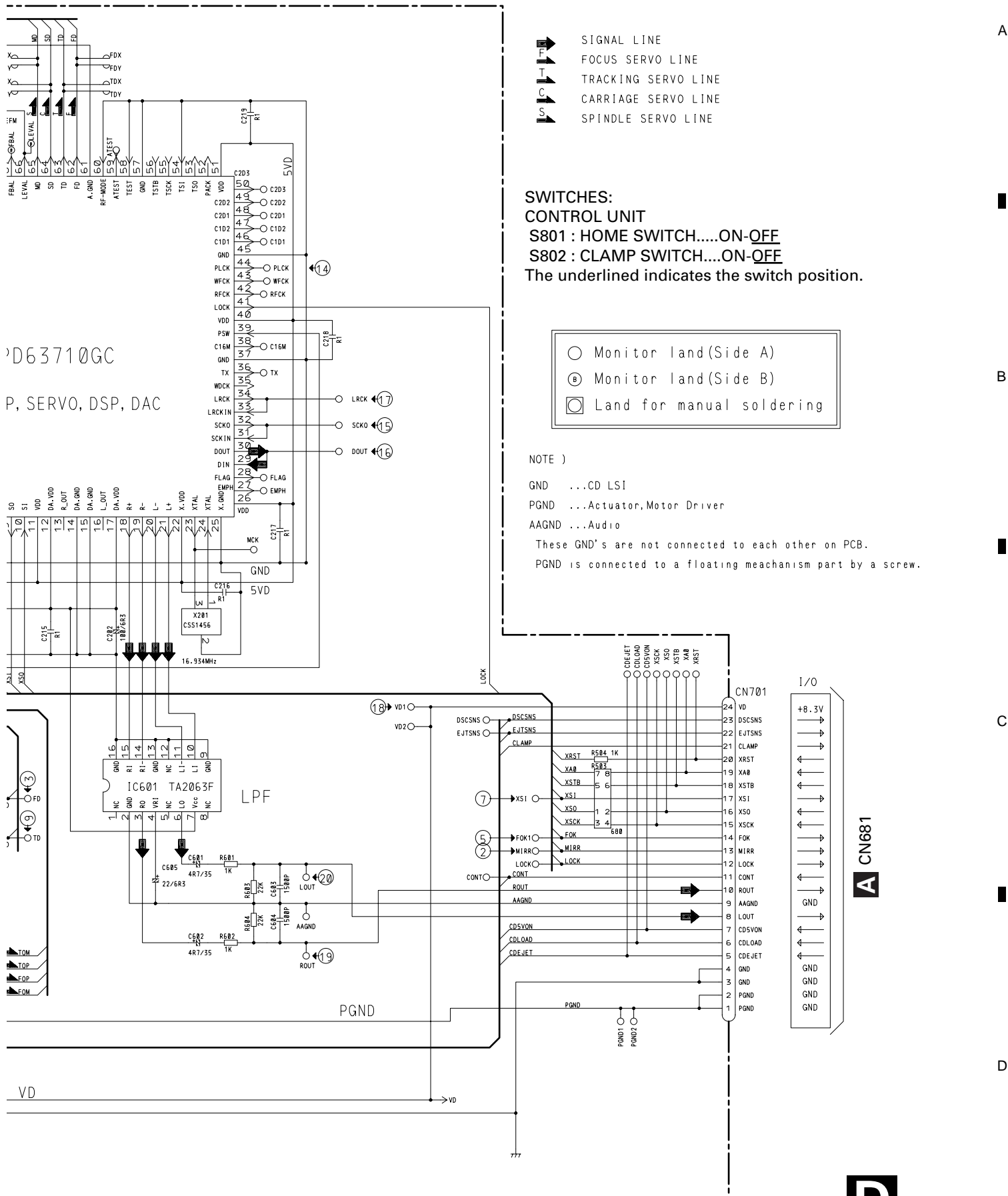




3.4 CD MECHANISM MODULE

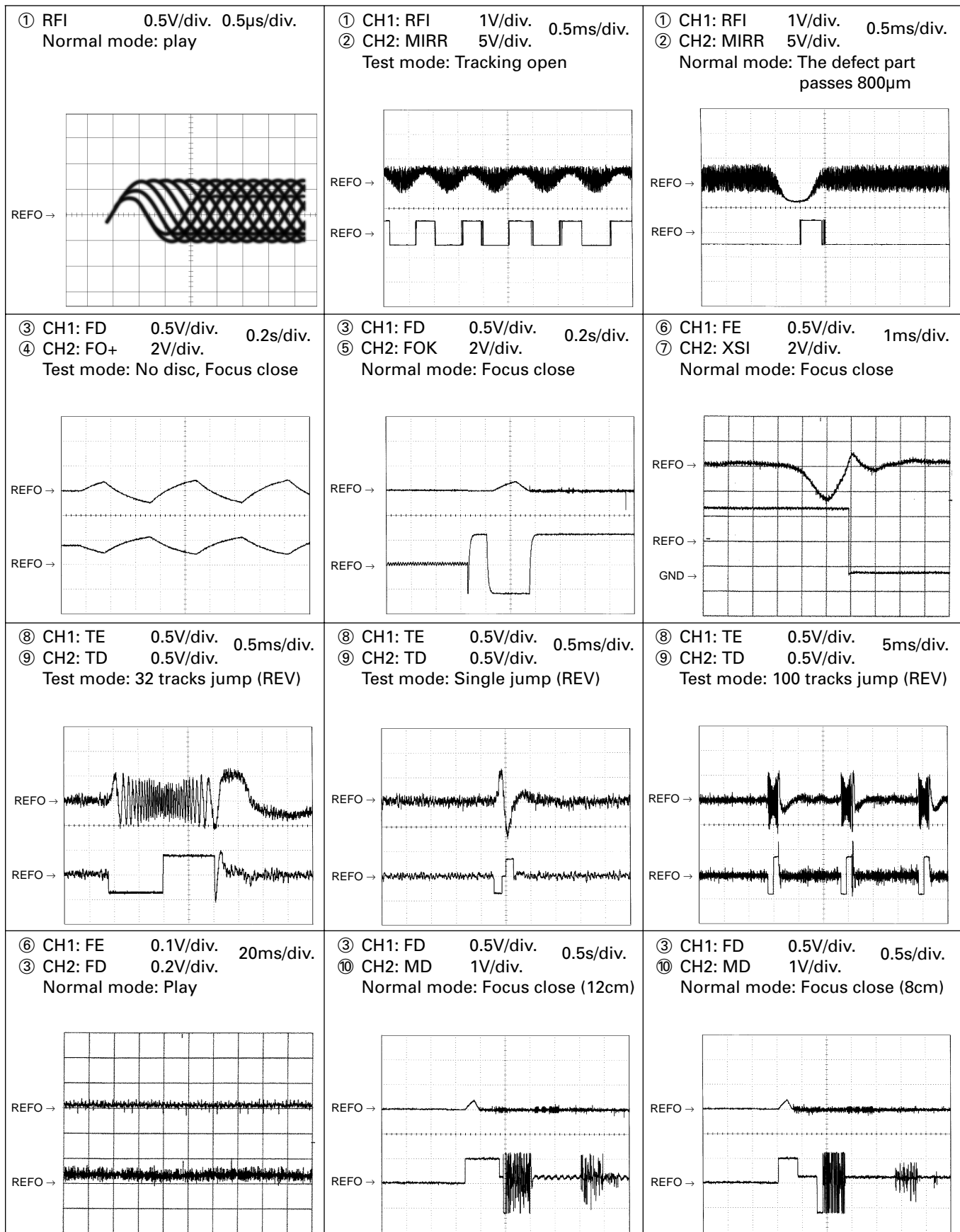
D CONTROL UNIT

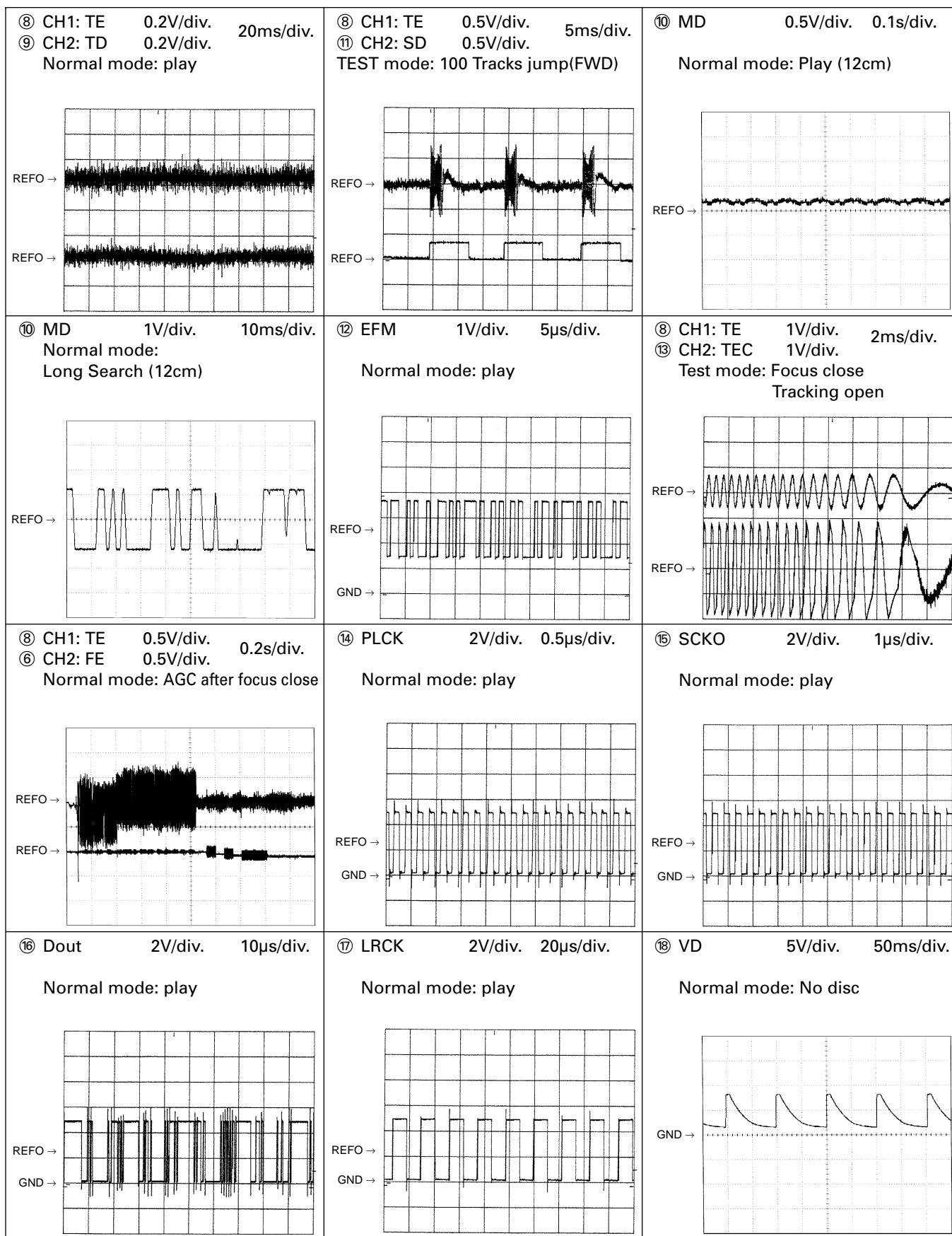




Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms





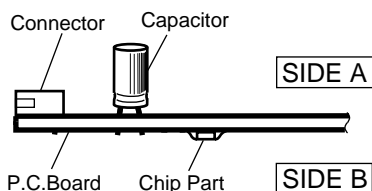
<div><div><div>⑰ CH1: R OUT 1V/div. 0.2ms/div.</div><div>⑳ CH2: L OUT 1V/div.</div><div>Normal mode: Play (1kHz 0dB)</div></div><div></div></div>	<div><div><div>⑥ CH1: FE 0.2V/div. 1ms/div.</div><div>③ CH2: FD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>	<div><div><div>⑧ CH1: TE 0.2V/div. 1ms/div.</div><div>⑨ CH2: TD 0.5V/div.</div><div>Normal mode: During AGC</div></div><div></div></div>
<div><div><div>① CH1: RFI 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>③ CH1: FD 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>	<div><div><div>⑨ CH1: TD 0.1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm(B.D)</div></div><div></div></div>

4.1 TUNER AMP UNIT

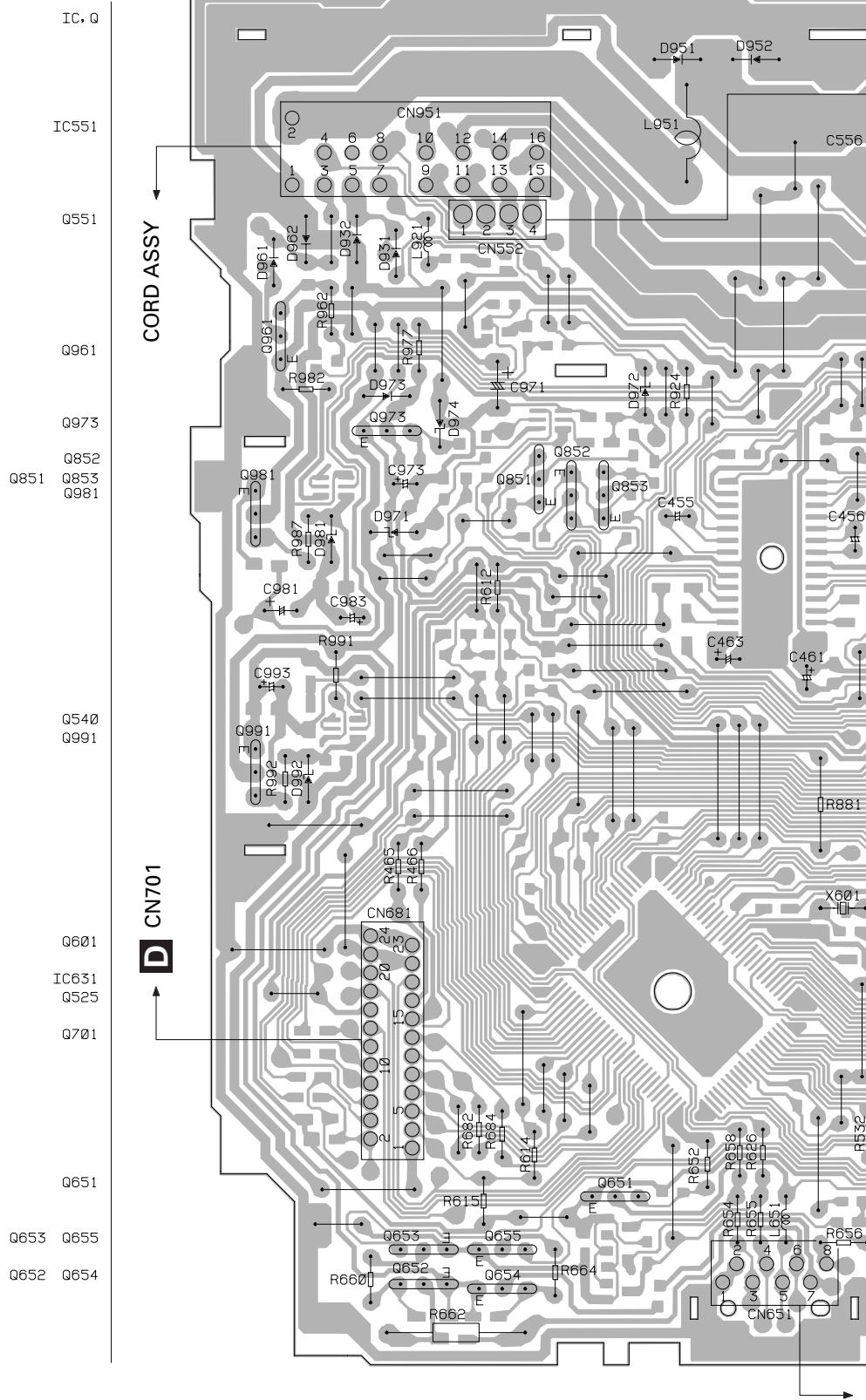
1. The parts mounted on this PCB include all necessary parts for several destination.

For further information for respective destinations, be sure to check with the schematic diagram.

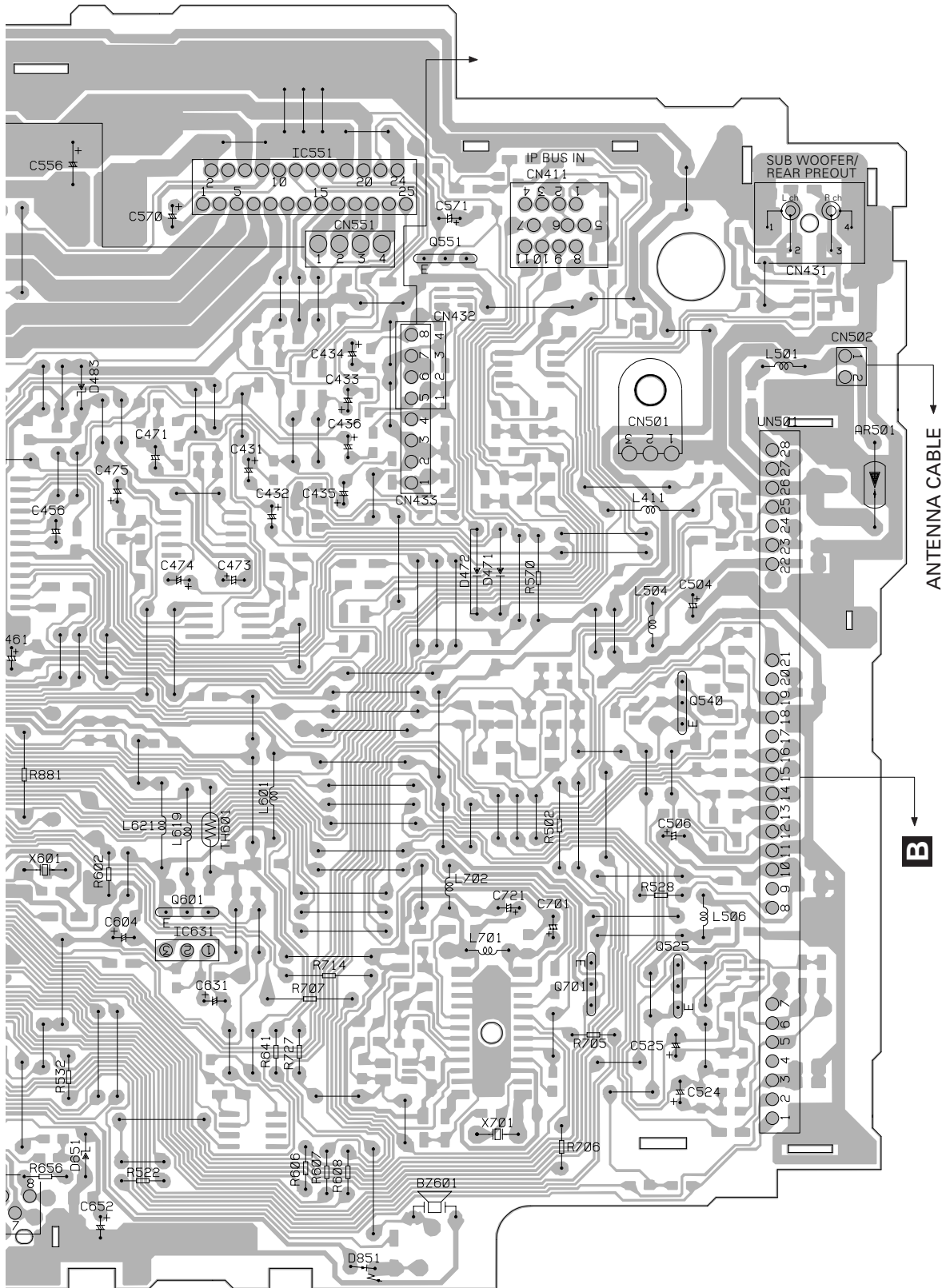
2. Viewpoint of PCB diagrams



A TUNER AMP UNIT



SIDE A



CN1801

A

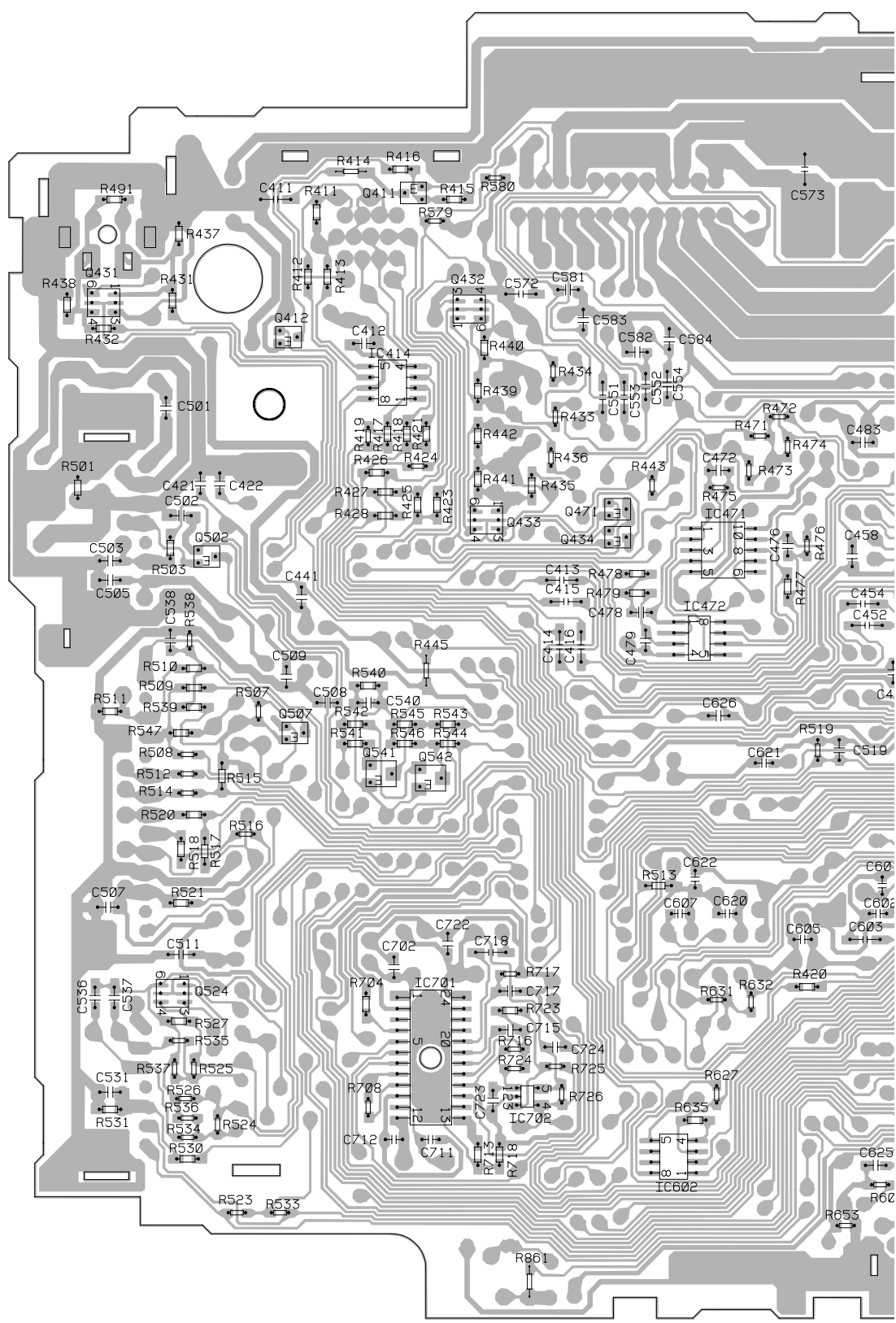
A TUNER AMP UNIT

A

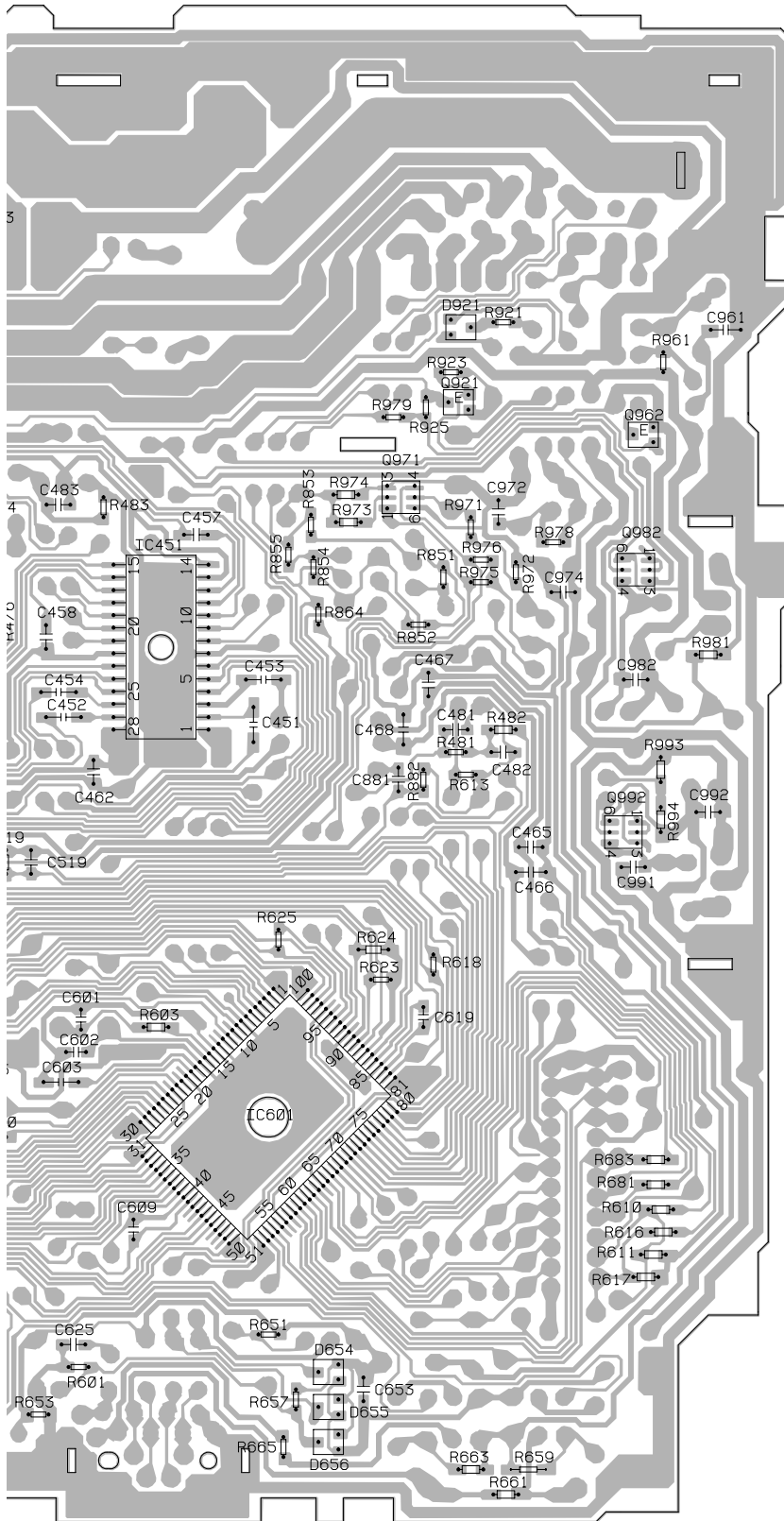
B

C

D



SIDE B



IC, Q

Q411

Q431	
Q432	

Q412
Q921
IC414
Q962

Q971

IC451 Q982

Q471	IC471
Q433	
Q502	Q434

IC472

Q992
Q507

Q541	Q542
------	------

IC601
IC701
Q524

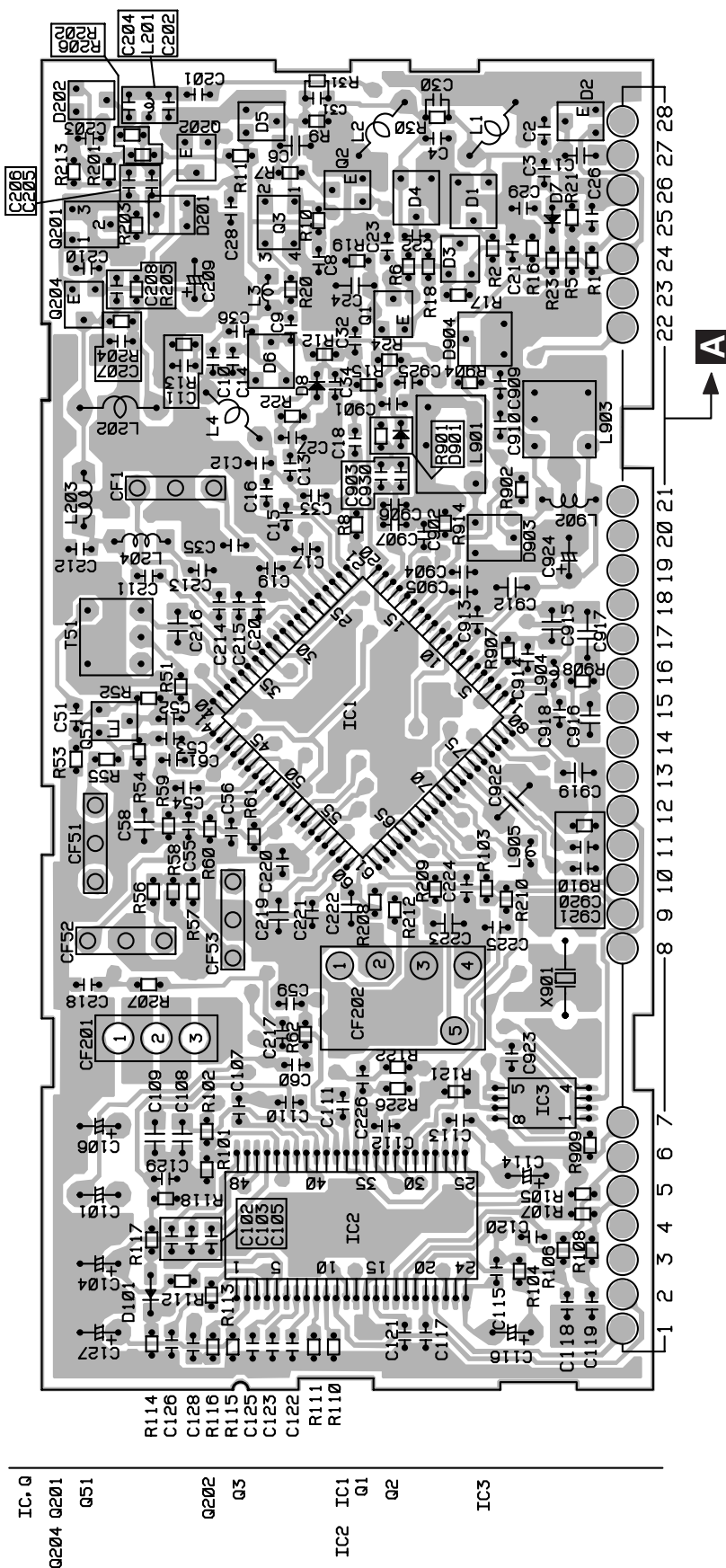
IC702

IC602

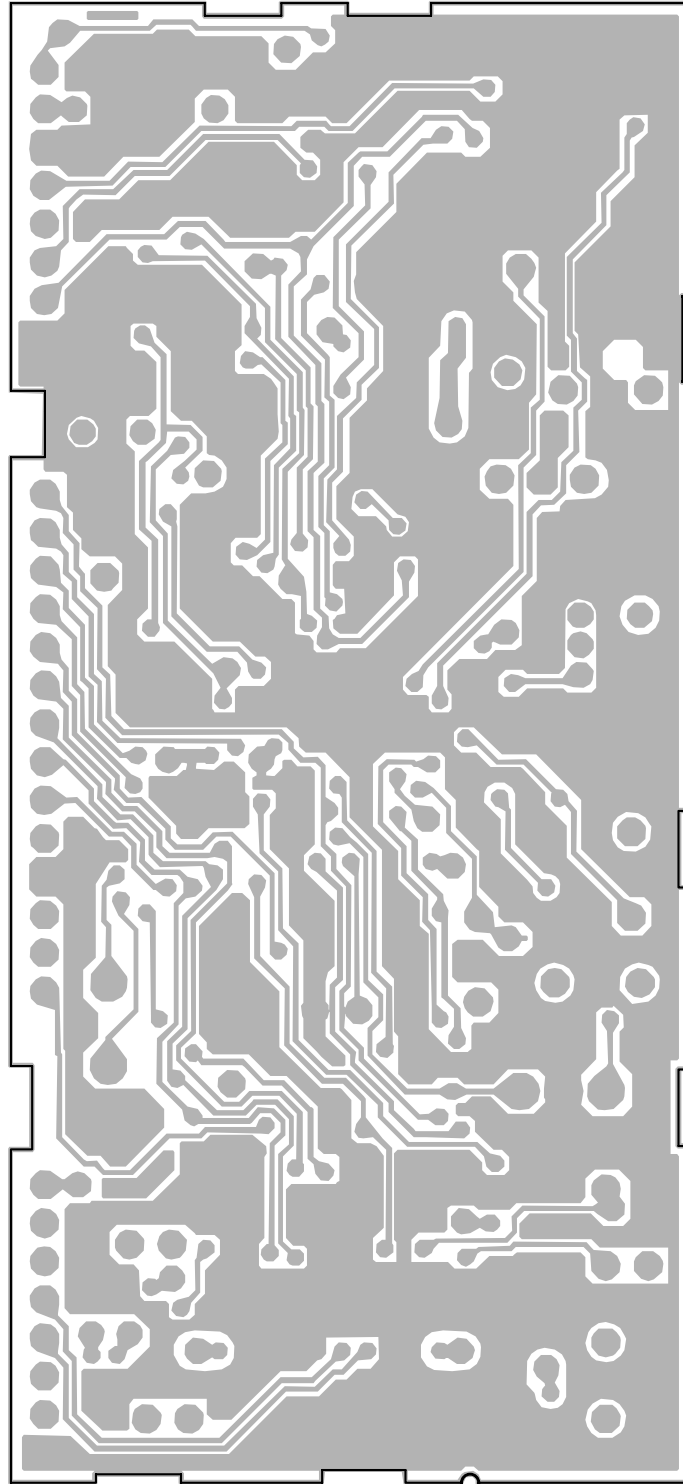
4.2 FM/AM TUNER UNIT

SIDE A

B FM/AM TUNER UNIT



SIDE B

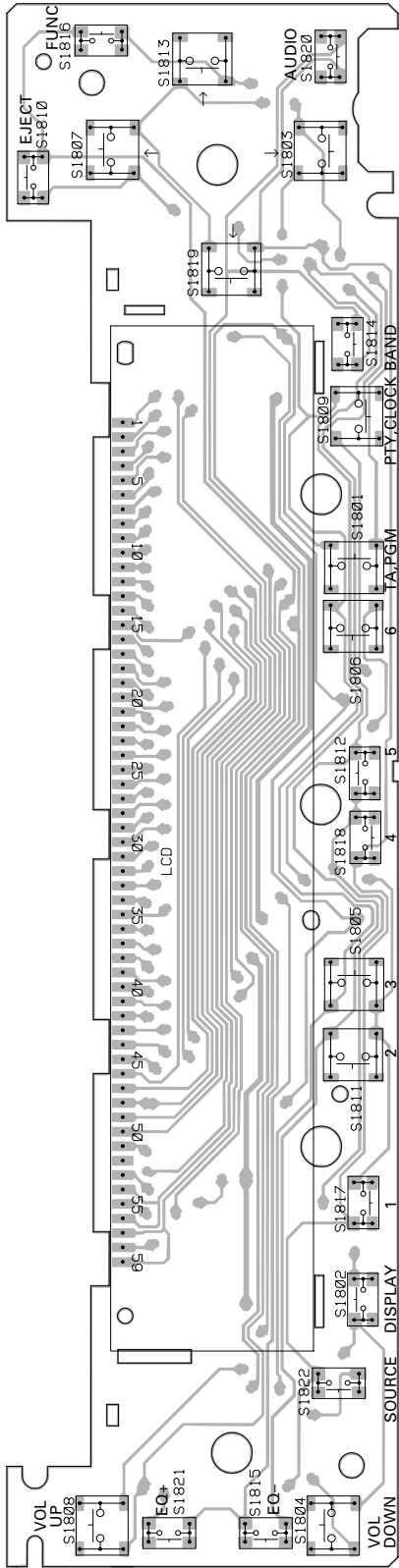


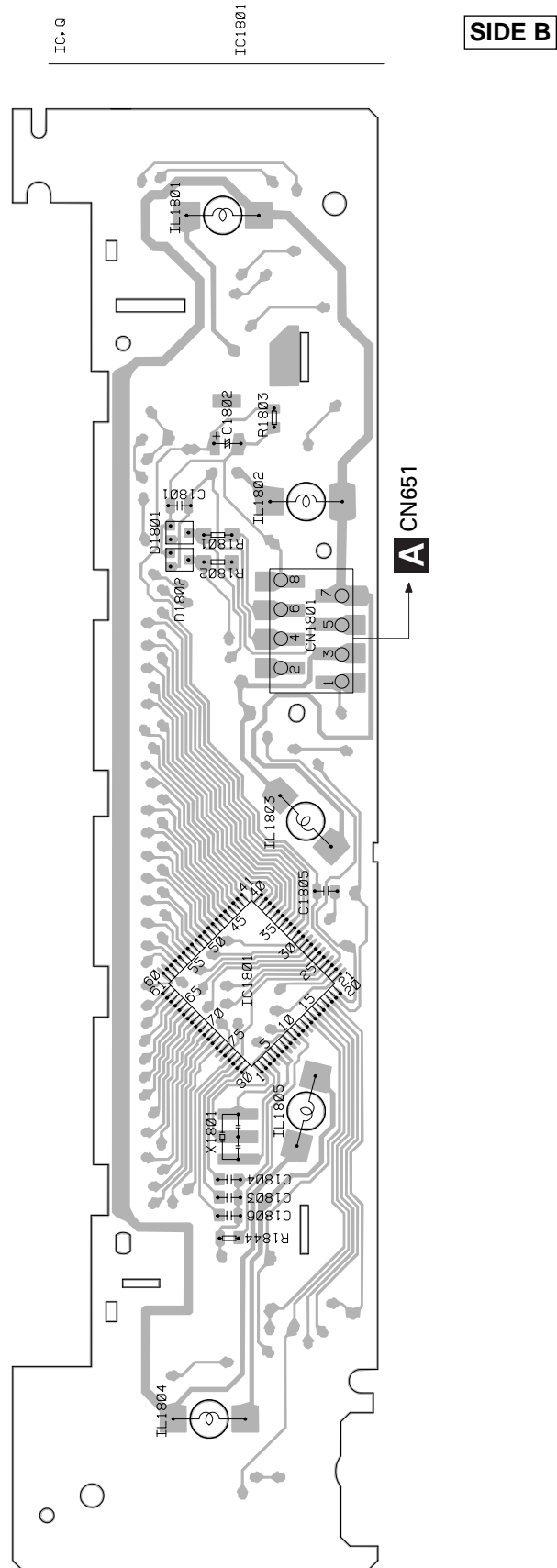
B FM/AM TUNER UNIT

4.3 KEYBOARD UNIT

SIDE A

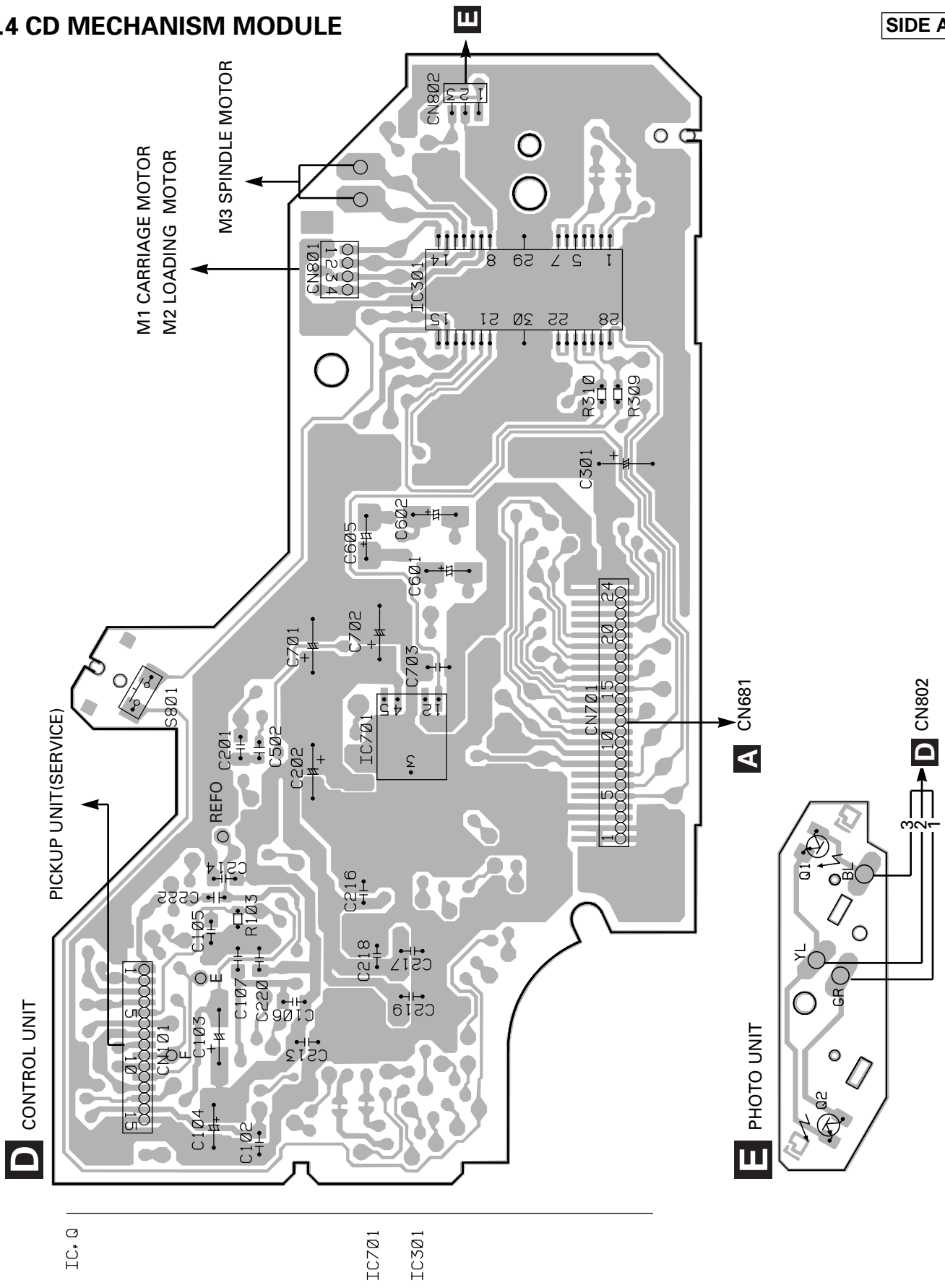
C KEYBOARD UNIT

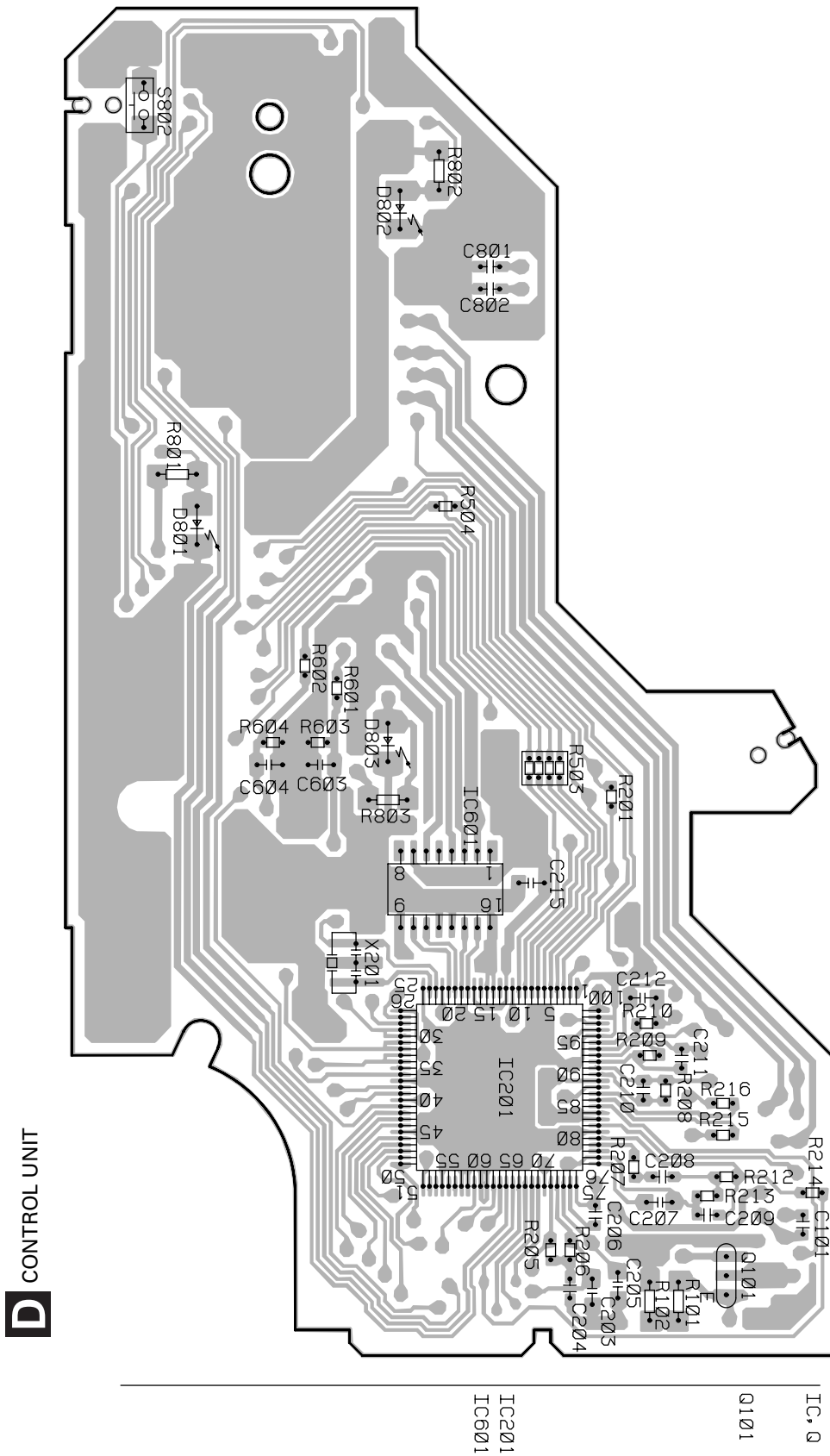




4.4 CD MECHANISM MODULE

SIDE A





5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
<div> <div>A</div> <div>Unit Number : CWM6085(DEH-P2000/X1N/UC, DEH-P20/X1N/UC)</div> <div>Unit Name : Tuner Amp Unit</div> </div>		RESISTORS	
MISCELLANEOUS		R 411	RS1/10S620J
IC 411 IC	CA0008AM	R 412	RS1/10S101J
IC 451 IC	PML003AM	R 413	RS1/10S101J
IC 551 IC	PAL005A	R 414	RS1/8S222J
IC 601 IC	PD4989A	R 415	RS1/10S332J
IC 631 IC	S-80734AN	R 416	RS1/10S682J
Q 411 Transistor	2SA1576	R 417	RS1/10S102J
Q 412 Transistor	DTC124EU	R 418	RS1/10S102J
Q 431 Transistor	IMH3A	R 419	RS1/10S473J
Q 434 Transistor	DTA124EU	R 420	RS1/10S103J
Q 502 Transistor	2SC4081	R 421	RS1/10S473J
Q 551 Transistor	DTC144ES	R 423	RS1/10S821J
Q 601 Transistor	DTA114ES	R 424	RS1/10S821J
Q 651 Transistor	2SA933S	R 425	RS1/10S223J
Q 652 Transistor	2SB1236	R 426	RS1/10S223J
Q 653 Transistor	DTC124ES	R 427	RS1/10S102J
Q 971 Transistor	IMX1	R 428	RS1/10S102J
Q 973 Transistor	2SD1859	R 431	RS1/10S821J
Q 981 Transistor	2SD2396	R 432	RS1/10S821J
Q 982 Transistor	IMD2A	R 437	RS1/10S223J
Q 991 Transistor	2SD2396	R 438	RS1/10S0R0J
Q 992 Transistor	IMD2A	R 443	RS1/8S473J
D 651 Diode	MTZ5R6J(C)	R 445	RD1/4PU221J
D 654 Diode Network	DA204U	R 466	RD1/4PU221J
D 655 Diode Network	DA204U	R 501	RS1/10S0R0J
D 656 Diode Network	DA204U	R 502	RD1/4PU222J
D 931 Diode	1SR139-400	R 503	RS1/10S222J
D 932 Diode	1SR139-400	R 507	RS1/10S0R0J
D 951 Diode	1SR139-400	R 508	RS1/10S681J
D 952 Diode	1SR139-400	R 509	RS1/10S473J
D 971 Diode	HZS7L(C2)	R 511	RS1/10S473J
D 972 Diode	HZS6L(C3)	R 512	RS1/10S681J
D 973 Diode	1SR139-400	R 513	RS1/8S473J
D 974 Diode	HZS6L(B1)	R 514	RS1/10S681J
D 981 Diode	HZS9L(B3)	R 515	RS1/8S473J
D 992 Diode	HZS9L(B1)	R 516	RS1/10S681J
L 411 Inductor	LAU3R3J	R 517	RS1/8S472J
L 501 Ferri-Inductor	LAU4R7K	R 518	RS1/10S103J
L 504 Ferri-Inductor	LAU2R2K	R 519	RS1/10S393J
L 506 Inductor	LAU100K	R 520	RS1/10S681J
L 601 Inductor	LAU100K	R 521	RS1/10S473J
L 619 Ferri-Inductor	LAU2R2K	R 522	RD1/4PU681J
L 621 Ferri-Inductor	LAU2R2K	R 523	RS1/10S473J
L 651 Ferri-Inductor	LAU101K	R 524	RS1/10S0R0J
L 951 Choke Coil 600μH	CTH1221	R 525	RS1/10S0R0J
TH 601 Thermistor	CCX1031	R 532	RD1/4PU681J
X 601 Radiator 12.58291MHz	CSS1402	R 533	RS1/10S473J
BZ 601 FM/AM Tuner Unit	CWE1501-/N	R 534	RS1/10S272J
AR 501 Buzzer	CPV1050	R 535	RS1/10S272J
	DSP-201M		

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 536	RS1/10S162J	C 416	CKSYB105K16
R 537	RS1/10S162J	C 431	CEJA4R7M35
R 538	RS1/10S0R0J	C 432	CEAL4R7M35
R 570	RD1/4PU103J	C 451	CKSYB224K25
R 579	RS1/10S331J	C 452	CKSYB224K25
R 580	RS1/10S103J	C 453	CKSYB105K16
R 602	RD1/4PU473J	C 454	CKSYB105K16
R 603	RS1/10S102J	C 455	CEJANP4R7M16
R 606	RD1/4PU102J	C 456	CEJANP4R7M16
R 607	RD1/4PU102J	C 457	CKSQYB153K50
R 608	RD1/4PU102J	C 458	CKSQYB153K50
R 610	RS1/10S222J	C 461	CEAL470M10
R 611	RS1/10S473J	C 462	CKSQYB104K25
R 613	RS1/10S0R0J	C 463	CEJA100M16
R 614	RD1/4PU222J	C 465	CCSQL182J50
R 615	RD1/4PU473J	C 466	CCSSL182J50
R 616	RS1/10S222J	C 501	CKSQYB103K50
R 617	RS1/10S473J	C 502	CKSQYB223K50
R 618	RN1/10SE2002D	C 503	CKSQYB223K50
R 623	RS1/10S473J	C 504	CEJA220M10
R 624	RS1/8S473J	C 505	CKSQYB102K50
R 625	RS1/10S0R0J	C 506	CEAL101M10
R 626	RD1/4PU102J	C 507	CKSQYB473K25
R 627	RS1/10S473J	C 508	CCSQCH101J50
R 631	RS1/10S102J	C 509	CKSQYB102K50
R 632	RS1/10S822J	C 519	CKSQYB472K50
R 641	RD1/4PU102J	C 536	CKSQYB183K50
R 651	RS1/10S222J	C 537	CKSQYB183K50
R 652	RD1/4PU472J	C 551	CKSYB224K25
R 653	RS1/10S222J	C 552	CKSYB224K25
R 654	RD1/4PU222J	C 553	CKSYB224K25
R 655	RD1/4PU222J	C 554	CKSYB224K25
R 656	RD1/4PU222J	C 556	CCH1328
R 657	RS1/10S473J	C 570	CEJA100M16
R 658	RD1/4PU472J	C 571	CEJA330M10
R 659	RS1/8S472J	C 572	CKSYB105K16
R 660	RD1/4PU302J	C 573	CKSYB104K50
R 661	RS1/10S1R0J	C 601	CCSQCH200J50
R 681	RS1/10S681J	C 602	CCSQCH200J50
R 682	RD1/4PU102J	C 603	CKSYB105K16
R 683	RS1/10S102J	C 604	CEJA4R7M35
R 684	RD1/4PU102J	C 605	CCSQCH101J50
R 864	RS1/10S473J	C 607	CCSQCH101J50
R 971	RS1/10S103J	C 619	CCSQCH101J50
R 972	RS1/10S473J	C 622	CCSQCH101J50
R 973	RS1/10S103J	C 625	CCSQCH101J50
R 974	RS1/10S473J	C 631	CEJA2R2M50
R 975	RS1/10S473J	C 652	CEJA4R7M35
R 976	RS1/10S473J	C 653	CKSQYB473K25
R 977	RD1/4PU101J	C 971	CCH1331
R 978	RS1/10S472J	C 972	CKSQYB473K25
R 979	RS1/10S472J	C 973	CEJA101M10
R 981	RS1/10S1R0J	C 974	CKSQYB473K25
R 982	RD1/4PU511J	C 981	CCH1326
R 987	RD1/4PU221J	C 982	CKSQYB103K50
R 991	RD1/4PU221J	C 983	CEJA101M16
R 992	RD1/4PU221J	C 991	CKSQYB473K25
R 993	RS1/10S472J	C 992	CKSQYB102K50
R 994	RS1/10S222J	C 993	CEJA101M10

CAPACITORS

C 411	CKSYB104K25
C 412	CKSQYB473K25
C 413	CKSYB105K16
C 414	CKSYB105K16
C 415	CKSYB105K16



Unit Number : CWM6090(DEH-P2050/X1N/ES,
DEH-P2050/ES)

Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 411	IC	CA0008AM
IC 451	IC	PML003AM
IC 551	IC	PAL005A
IC 601	IC	PD4989A
IC 631	IC	S-80734AN

====Circuit Symbol and No.==Part Name			Part No.	====Circuit Symbol and No.==Part Name			Part No.
Q	411	Transistor	2SA1576	R	438		RS1/10S223J
Q	412	Transistor	DTC124EU	R	443		RS1/10S0R0J
Q	431	Transistor	IMH3A	R	445		RS1/8S473J
Q	434	Transistor	DTA124EU	R	465		RD1/4PU221J
Q	502	Transistor	2SC4081	R	466		RD1/4PU221J
Q	551	Transistor	DTC144ES	R	501		RS1/10S0R0J
Q	601	Transistor	DTA114ES	R	502		RD1/4PU222J
Q	651	Transistor	2SA933S	R	503		RS1/10S222J
Q	652	Transistor	2SB1236	R	507		RS1/10S0R0J
Q	653	Transistor	DTC124ES	R	508		RS1/10S681J
Q	971	Transistor	IMX1	R	509		RS1/10S473J
Q	973	Transistor	2SD1859	R	511		RS1/10S473J
Q	981	Transistor	2SD2396	R	512		RS1/10S681J
Q	982	Transistor	IMD2A	R	513		RS1/8S473J
Q	991	Transistor	2SD2396	R	514		RS1/10S681J
Q	992	Transistor	IMD2A	R	515		RS1/8S473J
D	651	Diode	MTZ5R6J(C)	R	516		RS1/10S681J
D	654	Diode Network	DA204U	R	517		RS1/8S472J
D	655	Diode Network	DA204U	R	518		RS1/10S103J
D	656	Diode Network	DA204U	R	519		RS1/10S393J
D	931	Diode	1SR139-400	R	520		RS1/10S681J
D	932	Diode	1SR139-400	R	521		RS1/10S473J
D	951	Diode	1SR139-400	R	522		RD1/4PU681J
D	952	Diode	1SR139-400	R	523		RS1/10S473J
D	971	Diode	HZS7L(C2)	R	524		RS1/10S0R0J
D	972	Diode	HZS6L(C3)	R	525		RS1/10S0R0J
D	973	Diode	1SR139-400	R	532		RD1/4PU681J
D	974	Diode	HZS6L(B1)	R	533		RS1/10S473J
D	981	Diode	HZS9L(B3)	R	534		RS1/10S272J
D	992	Diode	HZS9L(B1)	R	535		RS1/10S272J
L	411	Inductor	LAU3R3J	R	536		RS1/10S162J
L	501	Ferri-Inductor	LAU4R7K	R	537		RS1/10S162J
L	504	Ferri-Inductor	LAU2R2K	R	538		RS1/10S0R0J
L	506	Inductor	LAU100K	R	570		RD1/4PU103J
L	601	Inductor	LAU100K	R	579		RS1/10S331J
L	619	Ferri-Inductor	LAU2R2K	R	580		RS1/10S103J
L	621	Ferri-Inductor	LAU2R2K	R	602		RD1/4PU473J
L	651	Ferri-Inductor	LAU101K	R	603		RS1/10S102J
L	951	Choke Coil 600μH	CTH1221	R	606		RD1/4PU102J
TH	601	Thermistor	CCX1031	R	607		RD1/4PU102J
X	601	Radiator 12.58291MHz	CSS1402	R	608		RD1/4PU102J
		FM/AM Tuner Unit	CWE1501	R	610		RS1/10S222J
BZ	601	Buzzer	CPV1050	R	611		RS1/10S473J
AR	501		DSP-201M	R	612		RD1/4PU104J
				R	613		RS1/10S333J
RESISTORS				R	614		RD1/4PU222J
R	411		RS1/10S620J	R	615		RD1/4PU473J
R	412		RS1/10S101J	R	616		RS1/10S222J
R	413		RS1/10S101J	R	617		RS1/10S473J
R	414		RS1/8S222J	R	618		RN1/10SE2002D
R	415		RS1/10S332J				
R	416		RS1/10S682J	R	623		RS1/10S473J
R	417		RS1/10S102J	R	624		RS1/8S473J
R	418		RS1/10S102J	R	625		RS1/10S0R0J
R	419		RS1/10S473J	R	626		RD1/4PU102J
R	420		RS1/10S103J	R	627		RS1/10S473J
R	421		RS1/10S473J	R	631		RS1/10S102J
R	423		RS1/10S821J	R	632		RS1/10S822J
R	424		RS1/10S821J	R	641		RD1/4PU102J
R	425		RS1/10S223J	R	651		RS1/10S222J
R	426		RS1/10S223J	R	652		RD1/4PU472J
R	427		RS1/10S102J	R	653		RS1/10S222J
R	428		RS1/10S102J	R	654		RD1/4PU222J
R	431		RS1/10S821J	R	655		RD1/4PU222J
R	432		RS1/10S821J	R	656		RD1/4PU222J
R	437		RS1/10S223J	R	657		RS1/10S473J

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
R 658	RD1/4PU472J	C 572	CKSYB105K16
R 659	RS1/8S472J	C 573	CKSYB104K50
R 660	RD1/4PU302J	C 601	CCSQCH200J50
R 661	RS1/10S1R0J	C 602	CCSQCH200J50
R 681	RS1/10S681J	C 603	CKSYB105K16
R 682	RD1/4PU102J	C 604	CEJA4R7M35
R 683	RS1/10S102J	C 605	CCSQCH101J50
R 684	RD1/4PU102J	C 607	CCSQCH101J50
R 864	RS1/10S473J	C 619	CCSQCH101J50
R 971	RS1/10S103J	C 622	CCSQCH101J50
R 972	RS1/10S473J	C 625	CCSQCH101J50
R 973	RS1/10S103J	C 631	CEJA2R2M50
R 974	RS1/10S473J	C 652	CEJA4R7M35
R 975	RS1/10S473J	C 653	CKSQYB473K25
R 976	RS1/10S473J	C 971	CCH1331
R 977	RD1/4PU101J	C 972	CKSQYB473K25
R 978	RS1/10S472J	C 973	CEJA101M10
R 979	RS1/10S472J	C 974	CKSQYB473K25
R 981	RS1/10S1R0J	C 981	CCH1326
R 982	RD1/4PU511J	C 982	CKSQYB103K50
R 987	RD1/4PU221J	C 983	CEJA101M16
R 991	RD1/4PU221J	C 991	CKSQYB473K25
R 992	RD1/4PU221J	C 992	CKSQYB102K50
R 993	RS1/10S472J	C 993	CEJA101M10
R 994	RS1/10S222J		



Unit Number : CWE1501

Unit Name : FM/AM Tuner Unit

CAPACITORS

C 411	CKSYB104K25
C 412	CKSQYB473K25
C 413	CKSYB105K16
C 414	CKSYB105K16
C 415	CKSYB105K16
C 416	CKSYB105K16
C 431	CEJA4R7M35
C 432	CEAL4R7M35
C 451	CKSYB224K25
C 452	CKSYB224K25
C 453	CKSYB105K16
C 454	CKSYB105K16
C 455	CEJANP4R7M16
C 456	CEJANP4R7M16
C 457	CKSQYB153K50
C 458	CKSQYB153K50
C 461	CEAL470M10
C 462	CKSQYB104K25
C 463	CEJA100M16
C 465	CCSQL182J50
C 466	CCSSL182J50
C 501	CKSQYB103K50
C 502	CKSQYB223K50
C 503	CKSQYB223K50
C 504	CEJA220M10
C 505	CKSQYB102K50
C 506	CEAL101M10
C 507	CKSQYB473K25
C 508	CCSQCH101J50
C 509	CKSQYB102K50
C 519	CKSQYB472K50
C 536	CKSQYB183K50
C 537	CKSQYB183K50
C 551	CKSYB224K25
C 552	CKSYB224K25
C 553	CKSYB224K25
C 554	CKSYB224K25
C 556	CCH1328
C 570	CEJA100M16
C 571	CEJA330M10

CAPACITORS

IC 1	IC	PML002A
IC 2	IC	PM4008A
IC 3	IC	BR9010FV
Q 1	Transistor	2SC4081
Q 2	Transistor	DTC124EU
Q 3	FET	3SK263
Q 51	Transistor	2SC4081
Q 201	FET	2SK932
Q 202	Transistor	DTC124EU
Q 204	Transistor	2SC4081
D 1	Diode	KV1410(23)
D 2	Diode	1SV248
D 6	Diode	KV1410(23)
D 201	Diode	MA143
D 202	Diode	MA147
D 903	Diode	KV1410(23)
D 904	Diode	SVC253
L 1	Coil	CTC1155
L 3	Inductor	LCTB1R5K2125
L 4	Coil	CTC1155
L 201	Inductor	LCTB330K1608
L 202	Inductor	CTF1287
L 203	Inductor	LCTA121J3225
L 901	Coil	CTC1154
L 902	Inductor	LCTA3R3J3225
L 904	Inductor	LCTBR47K1608
L 905	Inductor	LCTBR47K1608
T 51	Coil	CTE1132
CF 51	Ceramic Filter	CTF1442
CF 52	Ceramic Filter	CTF1442
CF 53	Ceramic Filter	CTF1442
CF 202	Ceramic Filter	CTF1348
X 901	Crystal Resonator 10.250MHz	CSS1432

RESISTORS

R 1	RS1/16S183J
R 2	RS1/16S103J
R 5	RS1/16S0R0J
R 7	RS1/16S273J
R 8	RS1/16S473J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 9	RS1/16S223J	C 26	CKSRYB472K50
R 10	RS1/16S473J	C 30	CCSRCH220J50
R 11	RS1/16S221J	C 32	CCSRCH470J50
R 12	RS1/16S103J	C 35	CKSRYB103K50
R 13	RS1/16S104J	C 51	CKSRYB103K50
R 16	RS1/16S223J	C 52	CKSRYB473K16
R 17	RS1/16S221J	C 53	CCSRCK2R0C50
R 18	RS1/16S221J	C 54	CKSRYB103K50
R 19	RS1/16S473J	C 55	CKSRYB104K16
R 20	RS1/16S470J	C 56	CKSRYB104K16
R 31	RS1/16S0R0J	C 58	CKSQYB224K16
R 51	RS1/16S470J	C 101	CEALNP100M10
R 52	RS1/16S103J	C 102	CCSRCH151J50
R 53	RS1/16S103J	C 103	CKSRYB473K16
R 54	RS1/16S331J	C 105	CKSRYB682K25
R 55	RS1/16S331J	C 106	CEALR68M50
R 56	RS1/16S560J	C 107	CKSRYB103K50
R 57	RS1/16S560J	C 108	CKSQYB474K16
R 58	RS1/16S102J	C 109	CKSQYB474K16
R 59	RS1/16S225J	C 110	CKSRYB104K16
R 60	RS1/16S133J	C 111	CKSRYB104K16
R 61	RS1/16S433J	C 112	CKSRYB104K16
R 101	RS1/16S333J	C 113	CKSRYB123K25
R 102	RS1/16S103J	C 114	CEAL220M6R3
R 103	RS1/16S333J	C 115	CKSRYB473K16
R 104	RS1/16S562J	C 116	CEAL2R2M50
R 106	RS1/16S0R0J	C 117	CKSRYB102K50
R 108	RS1/16S0R0J	C 120	CKSRYB183K25
R 110	RS1/16S154J	C 121	CKSRYB332K50
R 111	RS1/16S273J	C 122	CKSRYB562K25
R 113	RS1/16S222J	C 123	CKSRYB681K50
R 114	RS1/16S333J	C 125	CKSRYB103K50
R 115	RS1/16S334J	C 126	CKSRYB103K50
R 116	RS1/16S473J	C 127	CEAL2R2M50
R 202	RS1/16S472J	C 128	CKSRYB103K50
R 203	RS1/16S225J	C 201	CCSRCH471J50
R 204	RS1/16S102J	C 202	CCSRCH100D50
R 205	RS1/16S220J	C 203	CKSRYB104K16
R 206	RS1/16S471J	C 204	CKSRYB332K50
R 208	RS1/16S104J	C 205	CKSRYB103K50
R 209	RS1/16S104J	C 206	CKSRYB104K16
R 210	RS1/16S563J	C 207	CKSRYB473K16
R 213	RS1/16S223J	C 208	CCSRCH560J50
R 902	RS1/16S103J	C 209	CEAL470M6R3
R 904	RS1/16S473J	C 210	CKSRYB103K50
R 907	RS1/16S103J	C 211	CKSRYB103K50
R 908	RS1/16S681J	C 212	CCSRCH101J50
R 909	RS1/16S473J	C 215	CKSRYB223K25
R 914	RS1/16S562J	C 216	CKSQYB334K16
		C 217	CKSRYB103K50
CAPACITORS		C 219	CKSQYB105K10
C 1	CCSQCH4R0C50	C 220	CKSRYB104K16
C 6	CKSQYB105K10	C 221	CKSRYB473K16
C 8	CKSRYB222K50	C 222	CKSQYB334K16
C 10	CCSRCH220J50	C 223	CKSQYB474K16
C 11	CCSRCH150J50		
C 12	CCSRCH8R0D50	C 224	CKSRYB104K16
C 14	CCSRCJ3R0C50	C 225	CKSRYB272K50
C 15	CKSRYB103K50	C 226	CKSRYB682K25
C 16	CKSRYB222K50	C 902	CCSRCH270J50
C 17	CKSRYB222K50	C 904	CKSRYB223K25
C 18	CCSRCJ3R0C50	C 905	CKSRYB103K50
C 19	CKSRYB103K50	C 906	CCSRTH100D50
C 20	CKSRYB103K50	C 907	CCSRTH150J50
C 21	CKSRYB103K50	C 909	CCSRTH100D50
C 24	CKSQYB334K16	C 910	CKSRYB332K50

====Circuit Symbol and No.====Part Name Part No.

C	912	CKSQYB474K16
C	913	CKSRYB223K25
C	914	CKSRYB682K25
C	915	CKSQYB223K25
C	916	CKSQYB474K16

C	917	CKSYB475K10
C	918	CKSRYB223K25
C	919	CKSQYB225K10
C	920	CCSRCH270J50
C	921	CCSRCH270J50

C	922	CKSYB105K16
C	923	CKSRYB103K50

C Unit Number : CWM6098(DEH-P2000/X1N/UC,
DEH-P2050/X1N/ES)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1801	IC	PD6294A
D	1801	Diode Network	DA204U
D	1802	Diode Network	DA204U
X	1801	Radiator 5.00MHz	CSS1423
S	1801	Switch	CSG1110

S	1802	Switch	CSG1111
S	1803	Switch	CSG1110
S	1804	Switch	CSG1110
S	1805	Switch	CSG1110
S	1806	Switch	CSG1110

S	1807	Switch	CSG1110
S	1808	Switch	CSG1110
S	1809	Switch	CSG1110
S	1810	Switch	CSG1111
S	1811	Switch	CSG1110

S	1812	Switch	CSG1111
S	1813	Switch	CSG1110
S	1814	Switch	CSG1111
S	1815	Switch	CSG1111
S	1816	Switch	CSG1111

S	1817	Switch	CSG1111
S	1818	Switch	CSG1111
S	1819	Switch	CSG1110
S	1820	Switch	CSG1111
S	1821	Switch	CSG1111

S	1822	Switch	CSG1111
IL	1801	Lamp 14V 40mA	CEL1549
IL	1802	Lamp 14V 40mA	CEL1549
IL	1803	Lamp 14V 40mA	CEL1549
IL	1804	Lamp 14V 40mA	CEL1549

IL	1805	Lamp 14V 40mA	CEL1549
LCD	1801	LCD	CAW1500

RESISTORS

R	1801	RS1/8S222J
R	1802	RS1/8S222J
R	1803	RS1/10S472J
R	1844	RS1/10S103J

CAPACITORS

C	1801	CKSQYB104K50
C	1802	CEH100M6R3
C	1803	CKSQYB104K50
C	1804	CKSQYB104K50
C	1805	CKSQYB104K50
C	1806	CKSQYB104K50

====Circuit Symbol and No.====Part Name Part No.

C Unit Number : CWM6095(DEH-P20/X1N/UC)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1801	IC	PD6294A
D	1801	Diode Network	DA204U
D	1802	Diode Network	DA204U
X	1801	Radiator 5.00MHz	CSS1423
S	1801	Switch	CSG1110

S	1802	Switch	CSG1111
S	1803	Switch	CSG1110
S	1804	Switch	CSG1110
S	1805	Switch	CSG1110
S	1806	Switch	CSG1110

S	1807	Switch	CSG1110
S	1808	Switch	CSG1110
S	1809	Switch	CSG1110
S	1810	Switch	CSG1111
S	1811	Switch	CSG1110

S	1812	Switch	CSG1111
S	1813	Switch	CSG1110
S	1814	Switch	CSG1111
S	1815	Switch	CSG1111
S	1816	Switch	CSG1111

S	1817	Switch	CSG1111
S	1818	Switch	CSG1111
S	1819	Switch	CSG1110
S	1820	Switch	CSG1111
S	1821	Switch	CSG1111

S	1822	Switch	CSG1111
IL	1801	Lamp 14V 40mA	CEL1508
IL	1802	Lamp 14V 40mA	CEL1508
IL	1803	Lamp 14V 40mA	CEL1508
IL	1804	Lamp 14V 40mA	CEL1508

IL	1805	Lamp 14V 40mA	CEL1508
LCD	1801	LCD	CAW1500

RESISTORS

R	1801	RS1/8S222J
R	1802	RS1/8S222J
R	1803	RS1/10S472J
R	1844	RS1/10S103J

CAPACITORS

C	1801	CKSQYB104K50
C	1802	CEH100M6R3
C	1803	CKSQYB104K50
C	1804	CKSQYB104K50
C	1805	CKSQYB104K50

C	1806	CKSQYB104K50
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D Unit Number : CWX2344
Unit Name : Control Unit


MISCELLANEOUS

IC	201	IC	UPD63710GC
IC	301	IC	BA5985FM
IC	601	IC	TA2063F
IC	701	IC	BA05SFP
Q	101	Transistor	2SB1132

D	801	LED	CL200IRX
D	802	LED	CL200IRX
X	201	Ceramic Oscillator 16.934MHz	CSS1456
S	801	Spring Switch(HOME)	CSN1051
S	802	Spring Switch(CLAMP)	CSN1052

====Circuit Symbol and No.==Part Name	Part No.
RESISTORS	
R 101	RS1/8S120J
R 102	RS1/8S100J
R 103	RS1/16S222J
R 201	RS1/16S104J
R 205	RS1/16S103J
R 206	RS1/16S393J
R 207	RS1/16S182J
R 208	RS1/16S304J
R 210	RS1/16S0R0J
R 212	RS1/16S103J
R 213	RS1/16S103J
R 214	RS1/16S123J
R 215	RS1/16S273J
R 216	RS1/16S273J
R 309	RS1/16S473J
R 310	RS1/16S473J
R 503	RA4C681J
R 504	RS1/16S102J
R 601	RS1/16S102J
R 602	RS1/16S102J
R 603	RS1/16S223J
R 604	RS1/16S223J
R 801	RS1/8S751J
R 802	RS1/8S751J

CAPACITORS	
C 101	CCSRCH102J25
C 102	CKSQYB104K16
C 103	CEV101M6R3
C 104	CEV470M6R3
C 105	CKSQYB334K16
C 106	CKSQYB334K16
C 107	CKSQYB334K16
C 201	CKSQYB104K16
C 202	CEV101M6R3
C 203	CKSQYB104K16
C 204	CKSRYB332K50
C 205	CKSQYB104K16
C 206	CKSRYB392K50
C 207	CKSQYB224K16
C 208	CCSRCH270J50
C 209	CCSRCJ3R0C50
C 210	CCSRCH221J50
C 211	CCSRCH101J50
C 212	CKSQYB682K50
C 213	CKSQYB104K16
C 214	CKSQYB104K16
C 215	CKSQYB104K16
C 216	CKSQYB104K16
C 217	CKSQYB104K16
C 218	CKSQYB104K16
C 219	CKSQYB104K16
C 220	CKSQYB104K16
C 301	CEV470M16
C 502	CKSRYB471K50
C 601	CEV4R7M35
C 602	CEV4R7M35
C 603	CCSQSL152J50
C 604	CCSQSL152J50
C 605	CEV220M6R3
C 701	CEV101M6R3
C 702 22μF/6.3V	CCH1300
C 703	CKSQYB334K16

====Circuit Symbol and No.==Part Name	Part No.
 Unit Number : Unit Name : Photo Unit	
Q 1 Photo-transistor	CPT230SX-TU
Q 2 Photo-transistor	CPT230SX-TU
Miscellaneous Parts List	
M 1 Pickup Unit(Service)(P8)	CXX1285
M 2 Motor Unit(CARRIAGE)	CXB2190
M 2 Motor Unit(LOADING)	CXB2195
M 3 Motor Unit(SPINDLE)	CXB2562
Fuse(10A)	CEK1136

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.

If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.

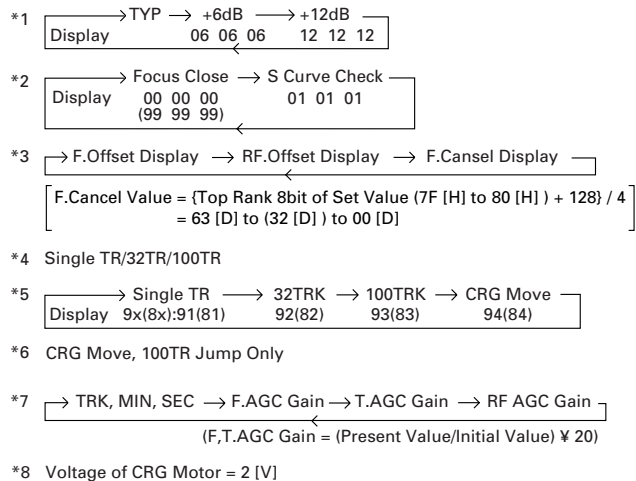
*The unit will not load a disc.

When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
Reset while pressing the **4** and **6** keys together.
- Test mode cancellation
Switch ACC, back-up OFF.
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.
- If the ► or ◀ key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).
- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the "Tracking close" status when the key is released.
- Powering Off/On resets the jump mode to "Single TR (91)", the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.



6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

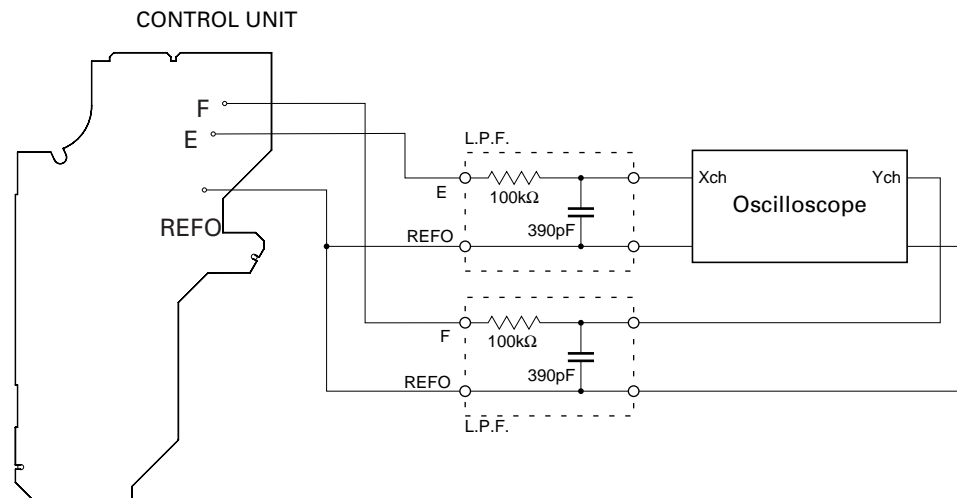
To check that the grating is within an acceptable range.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or track searching taking a long time, may appear.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, REFOUT |
| • Disc | • ABEX TCD-784 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the ► and ◀ buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 2 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75°. Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

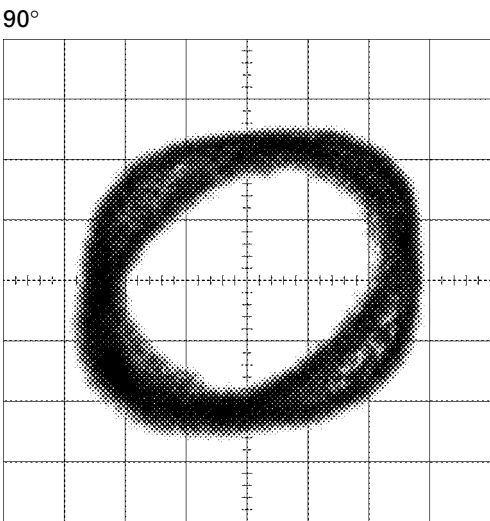
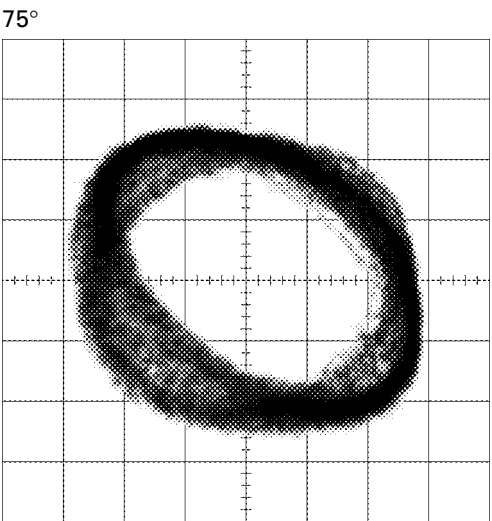
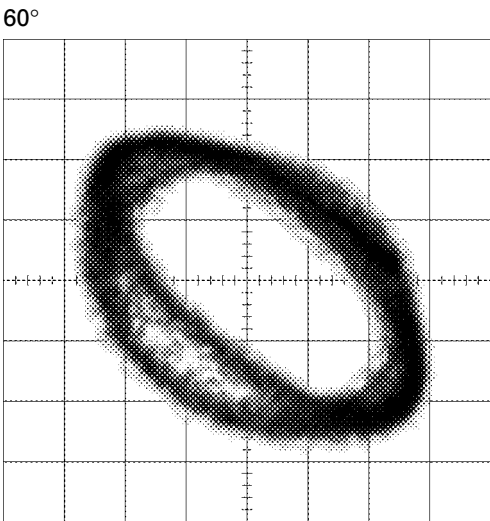
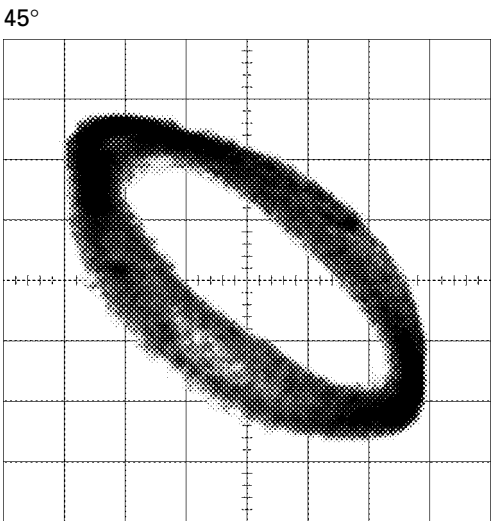
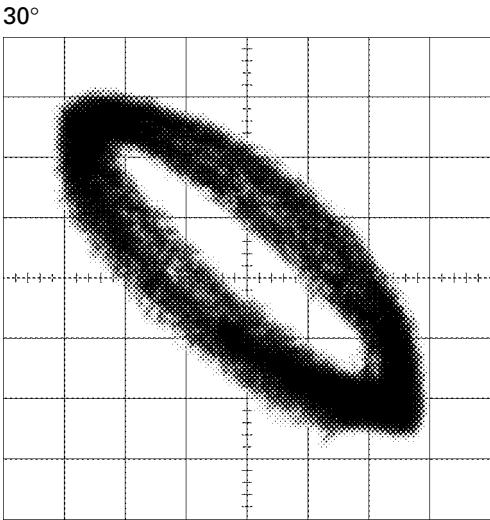
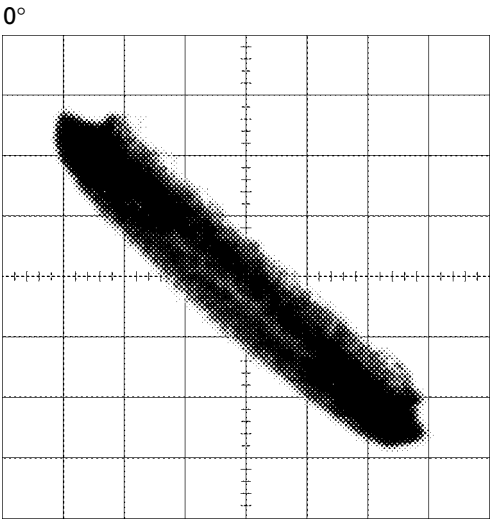
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC



7. GENERAL INFORMATION

7.1 PARTS

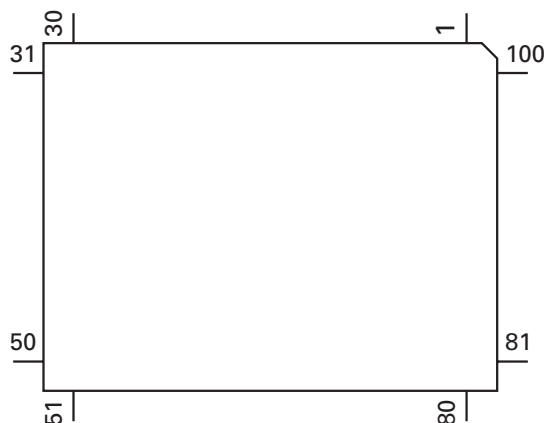
7.1.1 IC

● Pin Functions (PD4989A)

Pin No.	Pin Name	I/O	Function and Operation
1	DRSYS	O	Door system select output
2	DRSENS	I	Door open / close sense input
3	SYSPW	O	System power supply control output
4	DRELAY	O	External relay output
5	TESTIN	I	Test program mode input
6-9	NC		Not used
10	TUNPW	O	Tuner power control output
11	RESET	I	Reset input
12	XT2		Not used (open)
13	XT1		Not used (GND)
14	VSS		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Connect to VSS
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	GRNILM	O	Green illumination select output
21	NC		Not used
22	ADPW	O	A/D converter power supply output
23	AMBILM	O	Amber illumination select output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENB	O	Slave power supply control output
26,27	NC		Not used
28	MUTE	O	System mute output
29	FM/AM	O	RDS decoder power select output
30	LOCL	O	LOCL output
31	LOCH	O	LOCH output
32	TUNPCE2	O	PLL IC chip enable output
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36,37	NC		Not used
38	SD	I	SD input
39	ST	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42-44	NC		Not used
45	CURRQ	O	Tuner voltage FIX output
46-49	NC		Not used
50	DLED	O	Alarm LED output
51	SWVDD	O	Keyboard unit power supply control output
52	DSNS	I	Grille detach sense input
53	CONT	O	CD server driver power control output
54	CD5VON	O	CD +5V power control output
55	NC		Not used
56	VDCONT	O	CD VD power control output
57	CDMUTE	O	CD mute control output
58	CDEJET	O	CD eject control output
59	CDLOAD	O	CD LOAD motor loading control output
60	LOCK	I	CD spindle lock input
61	FOK	I	CD focus OK input
62	PCL	O	Clock adjustment output
63	MIRR	I	CD mirror detector input

Pin No.	Pin Name	I/O	Function and Operation
64	CLAMP	I	CD disc clamp sense input
65	XSCK	O	CD LSI clock output
66	XSI	I	CD LSI data input
67	XSO	O	CD LSI data output
68	XAO	O	CD LSI command/data control output
69	XRST	O	CD LSI reset output
70	XSTB	O	CD LSI strobe output
71	VCAOUT	O	Sub woofer electronic volume control output
72	SUBMUT	O	Sub woofer mute output
73	TEST	I	Test terminal
74	SL	I	Tuner signal level input
75	MODEL1	I	Model select input
76,77	NC		Not used
78	EJTSNS	I	CD disc EJECT position detect
79	DSCSNS	I	CD disc detect input
80	VDSSENS	I	CD VD over voltage / short-circuit sense input
81	TEMP	I	CD temperature sense input (CD)
82	(VDD)		A/D converter power supply terminal
83	(VDD)		A/D converter reference voltage terminal
84	(GND)		A/D converter GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	LDET	I	RDS PLL lock sense input
89-91	NC		Not used
92	ASENS	I	ACC power sense input
93	BSENS	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KEYDT	I	Key data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock output
98	TUNPDO	O	PLL IC data output
99	TUNPCE	O	PLL IC chip enable
100	PEE	O	Beep tone output

*PD4989A



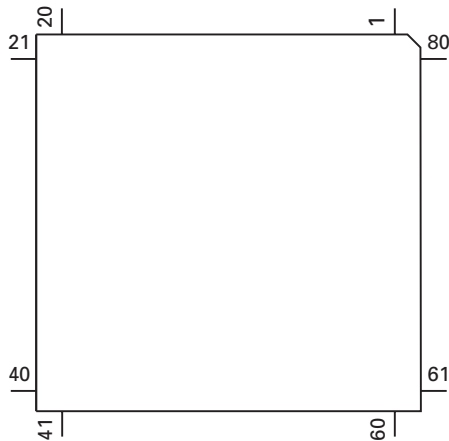
IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

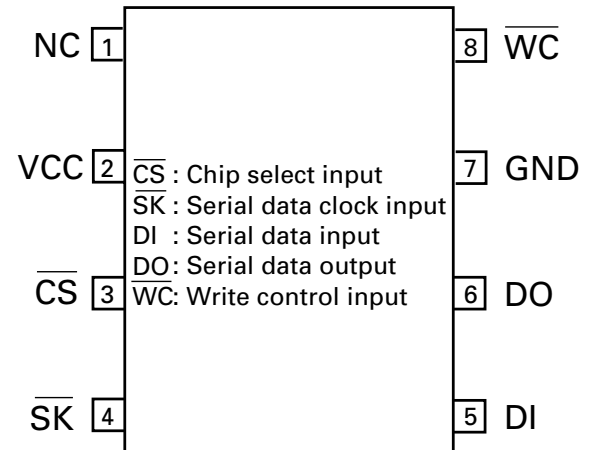
● Pin Functions (PD6294A)

Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	X1		Crystal oscillator connection pin
3	X0		Crystal oscillator connection pin
4	NC		Not used
5,6	MOD1,0	I	Connect to GND
7	NC		Not used
8	KYDT	O	Key data output
9	DPDT	I	Display data input
10	REMIN	I	Remote control pulse input
11,12	NC		Not used
13-16	KD4-KD1	I	Key data input
17-22	KST6-KST1	O	Key strobe output
23	VDD		VDD
24-73	SEG49-0	O	LCD segment output
74-77	COM3-0	O	LCD common output
78	VLCD	I	LCD voltage input
79,80	V2,V1		Power supply terminal

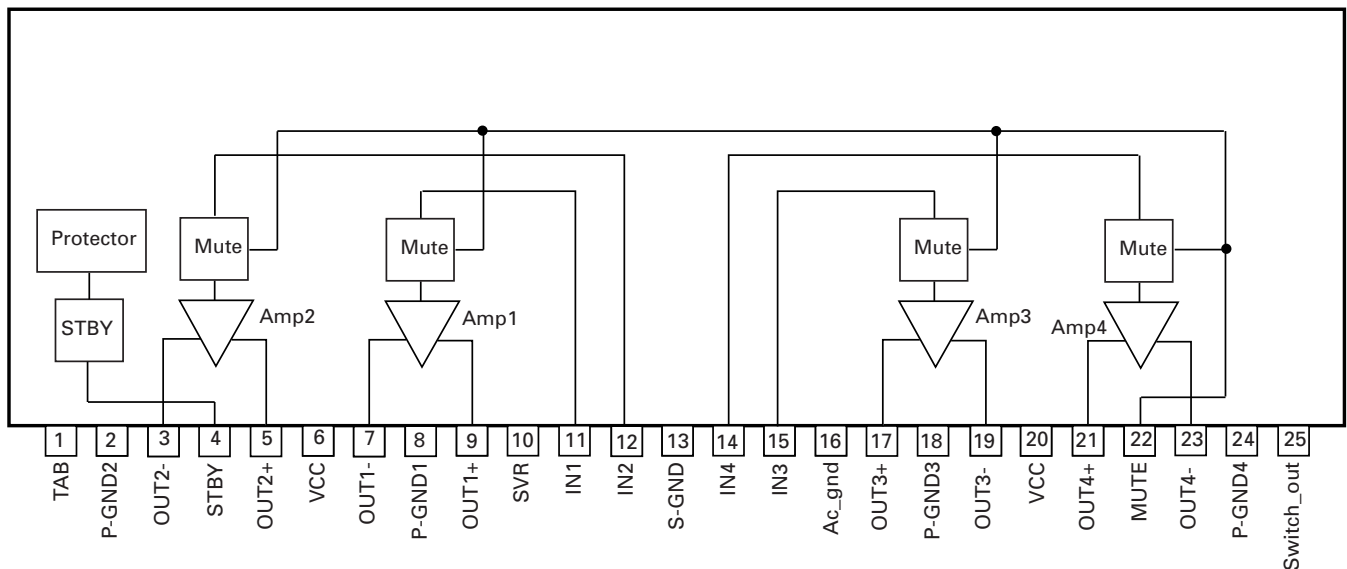
*PD6294A



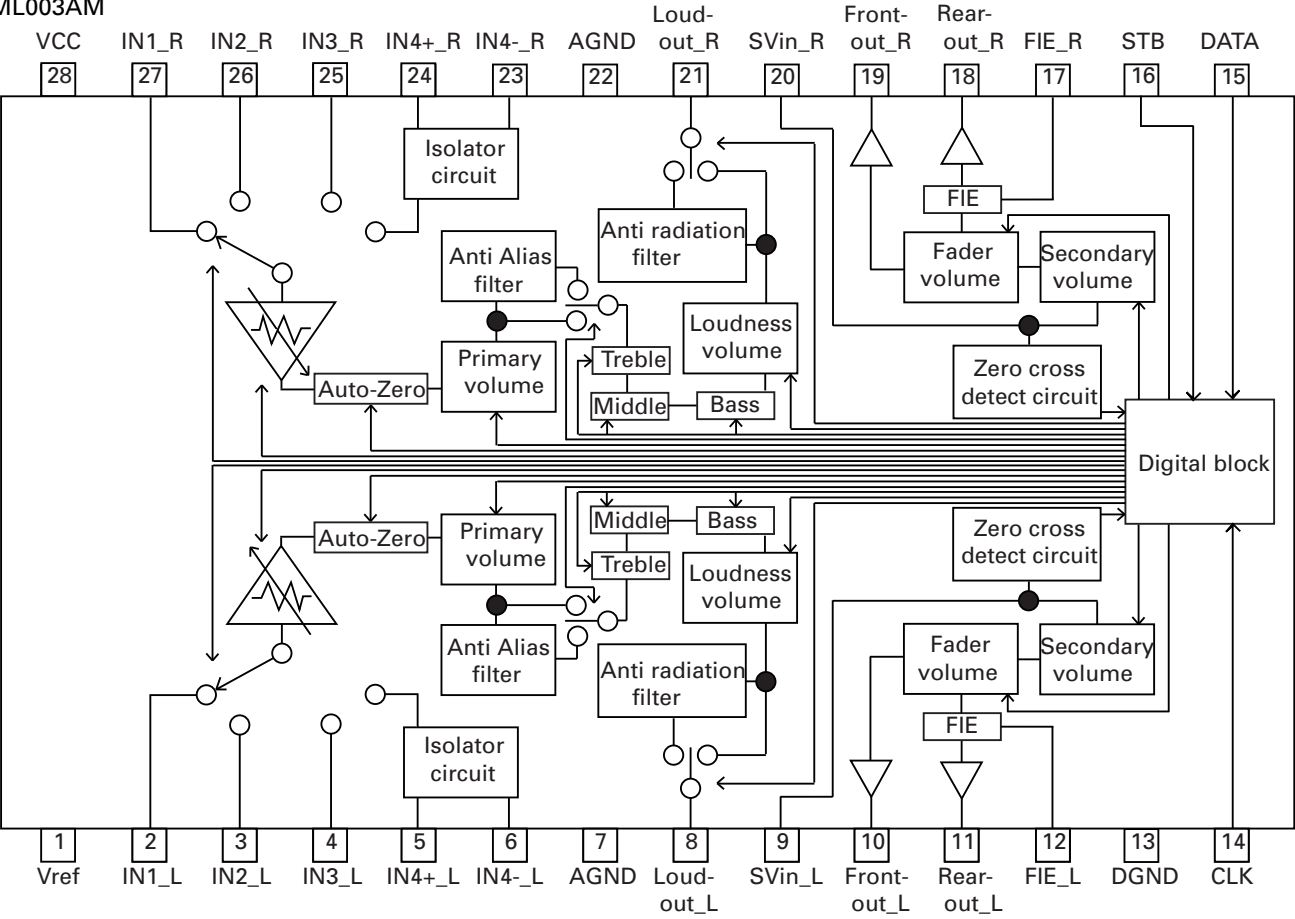
BR9010FV



PAL005A



PML003AM

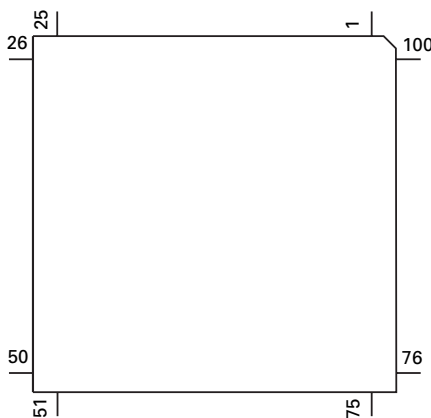


● Pin Functions (UPD63710GC)

Pin No.	Pin Name	I/O	Function and Operation
1	GND		Logic circuit GND
2	HOLD	I/O	Defect detection output
3	MIRR	I/O	MIRR output
4	FOK	O	RFOK signal output
5	RST	I	Reset signal input
6	A0	I	Command/parameter identification signal input
7	STB	I	Data strobe signal input
8	$\overline{\text{SCK}}$	I	Clock signal input for serial data input/output
9	SO	O	Serial data and status signal output
10	SI	I	Serial data input
11	VDD		Positive power supply terminal to logic circuit
12	DA.VDD		Positive power supply terminal to D/A converter
13	NC		Not used
14, 15	DA.GND		D/A converter GND
16	NC		Not used
17	DA.VDD		Positive power supply terminal to D/A converter
18	R+	O	Right channel audio data output
19	R-	O	Right channel audio data output
20	L-	O	Left channel audio data output
21	L+	O	Left channel audio data output
22	X.VDD		Positive power supply terminal to crystal oscillation circuit
23	$\overline{\text{XTAL}}$	O	Crystal oscillator connect pin
24	XTAL	I	Crystal oscillator connect pin
25	X.GND		Crystal oscillation circuit GND
26	VDD		Positive power supply terminal to logic circuit
27	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
28	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
29	DIN	I	Serial data input to internal DAC
30	DOUT	O	Serial audio data output
31	SCKIN	I	Serial clock input to internal DAC
32	SCKO	O	Audio data that is output from DOUT changes at rising edge of this clock
33	LRCKIN	I	LRCK signal input to internal DAC
34	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT
35	WDCK	O	Output double the frequency of LRCK
36	TX	O	Digital audio interface data output
37	GND		Logic circuit GND
38	C16M	O	Oscillator clock buffering output
39	LIMIT	I	Status of the pin is output at Bit 5 of the status output
40	VDD		Positive power supply terminal to logic circuit
41	LOCK	O	EFM synchronous detection signal
42	RFCK	O	Frame synchronous signal of XTAL-system
43	WFCK	O	Frame synchronous signal of PLL-system
44	PLCK	O	Monitor pin of bit clock
45	GND		Logic circuit GND
46	C1D1	O	Output pin for indicating the C1 error correction results
47	C1D2	O	Output pin for indicating the C1 error correction results
48	C2D1	O	Output pin for indicating the C2 error correction results
49	C2D2	O	Output pin for indicating the C2 error correction results
50	C2D3	O	Output pin for indicating the C2 error correction results
51	VDD		Positive power supply terminal to logic circuit
52	PACK	O	CD-TEXT PACK synchronous signal
53	TSO	O	CD-TEXT data serial output
54	TSI	I	CD-TEXT control parameter serial input
55	$\overline{\text{TSCK}}$	I	CD-TEXT serial clock input
56	TSTB	I	CD-TEXT parameter strobe signal input
57	GND		Logic circuit GND
58	TEST	I	Test pin

Pin No.	Pin Name	I/O	Function and Operation
59	ATEST	I/O	Test pin
60	RFMODE	I	Use/not use select for internal RF amplifier
61	A.GND		Analog circuit GND
62	FD	O	Focus drive output
63	TD	O	Tracking drive output
64	SD	O	Sled drive output
65	MD	O	Spindle drive output
66	DACO	O	DAC output for adjustment
67	FBAL	O	DAC output for adjustment
68	TBAL	O	DAC output for adjustment
69	TEVCA	O	DAC output for adjustment
70	A.VDD		Power supply terminal to analog circuit
71	EFM	O	EFM signal output
72	ASY	I	EFM comparator reference voltage input
73	C3T		3T detection capacitor additional pin
74	RFI	I	RF signal input for EFM data regulation
75	AGCO	O	RF signal output of after gain adjustment
76	AGCI	I	RF-AGC amplifier input
77	RFO	O	RF summing amplifier output
78	EQ2		RF amplifier equalizer parts additional pin
79	EQ1		RF amplifier equalizer parts additional pin
80	RF-	I	RF summing amplifier inverted input
81	A.GND		Analog circuit GND
82	A	I	Photo detector A input
83	C	I	Photo detector C input
84	B	I	Photo detector B input
85	D	I	Photo detector D input
86	F	I	Photo detector F input
87	E	I	Photo detector E input
88	A.VDD		Positive power supply terminal to analog circuit
89	REFOUT	O	Reference electric potential output
90	FE-	I	Focus error amplifier inverted input
91	FEO	I/O	Focus error amplifier output
92	TE-	I	Tracking error amplifier inverted input
93	TEO	I/O	Tracking error amplifier output
94	TE2	I/O	Tracking error output of after amplification
95	TEC	I	Tracking comparator input
96	A.GND		Analog circuit GND
97	PD	I	PD detection signal input for LD output monitor
98	LD	O	LD control current output
99	PN	I	APC circuit control polarity set pin
100	A.VDD		Positive power supply terminal to analog circuit

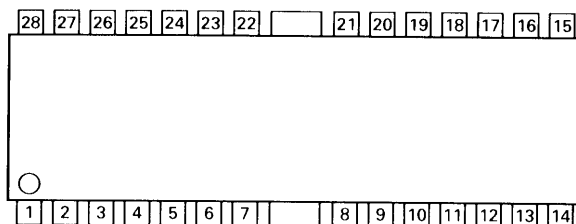
*UPD63710GC



● Pin Functions (BA5985FM)

Pin No.	Pin Name	I/O	Function and Operation
1	FWD	I	Loading driver FWD input
2	OPIN1(+)	I	CH1 pre-amplifier input
3	OPIN1(-)	I	CH1 pre-amplifier inverted input
4	OPOUT1	O	CH1 pre-amplifier output
5	OPIN2(+)	I	CH2 pre-amplifier input
6	OPIN2(-)	I	CH2 pre-amplifier inverted input
7	OPOUT2	O	CH2 pre-amplifier output
8	VCC		Power supply
9	VOL(-)	O	Loading driver negative output
10	VOL(+)	O	Loading driver positive output
11	VO2(-)	O	Driver CH2 negative output
12	VO2(+)	O	Driver CH2 positive output
13	VO1(-)	O	Driver CH1 negative output
14	VO1(+)	O	Driver CH1 positive output
15	VO4(+)	O	Driver CH4 positive output
16	VO4(-)	O	Driver CH4 negative output
17	VO3(+)	O	Driver CH3 positive output
18	VO3(-)	O	Driver CH3 negative output
19	GND		GND
20	BIAS	I	Bias input
21	MUTE		Mute control
22	OPOUT3	O	CH3 pre-amplifier output
23	OPIN3(-)	I	CH3 pre-amplifier inverted input
24	OPIN3(+)	I	CH3 pre-amplifier input
25	OPOUT4	O	CH4 pre-amplifier output
26	OPIN4(-)	I	CH4 pre-amplifier inverted input
27	OPIN4(+)	I	CH4 pre-amplifier input
28	REV	I	Loading driver REV input

BA5985FM



● CAW1497, CAW1500



7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● Removing the Case Unit(not shown)

1.Remove the Case Unit.

● Removing the Panel Assy(Fig.1)

1 Disengage the stoppers at two locations.

2 Remove the Panel Assy.

● Removing the CD Mechanism Module (not shown)

1.Remove the four screws.

2.Disconnect the connector, and then remove the CD Mechanism Module.

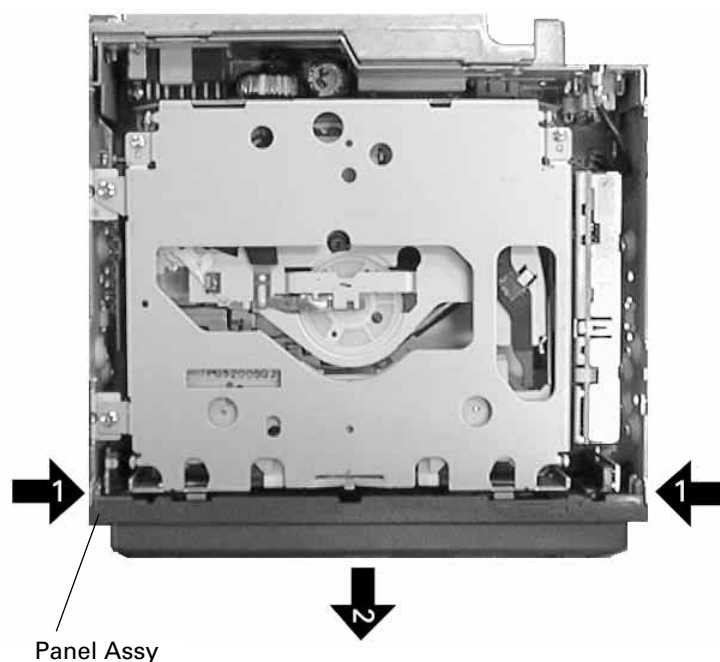


Fig.1

● Removing the Tuner Amp Unit(Fig.2)

1 Remove the two screws.

2 Remove the three screws.

3 Remove the screw.

4 Straighten the tabs at four locations indicated.
Remove the Tuner Amp Unit.

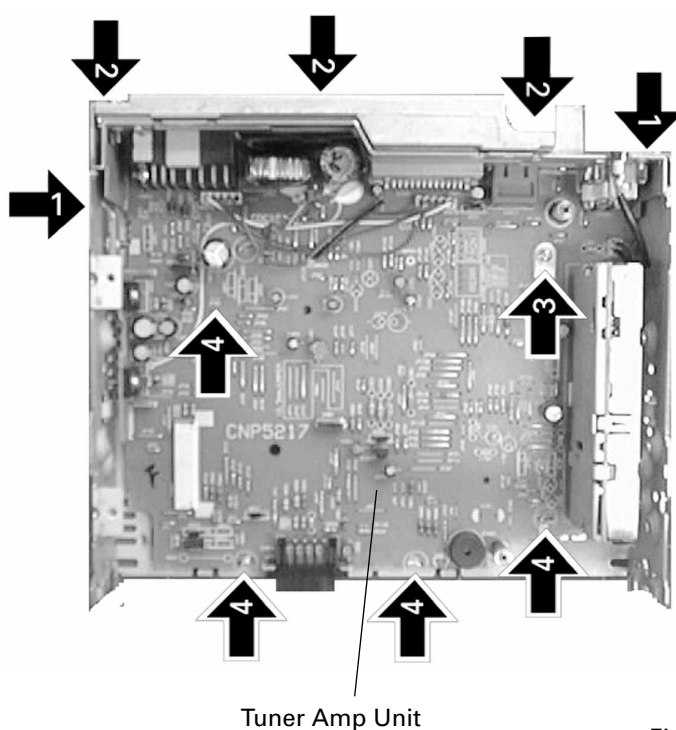


Fig.2

7.2.2 TEST MODE

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx
	OR	
	Err-xx	

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations.
		Subcode NG	A disc not containing CD-R data is found. Turned over disc are found, though rarely. → Failure on home switch or CRG move mechanism.
		RF AMP NG	An appropriate RF AMP gain can't be determined. → CD signal error.
17	Electricity	Setup NG	APC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

A newly designed head unit must conform to the example given above.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software (internal RAM: CPOINT) is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

- ① Turn on the current test mode by starting the reset from the key (it varies between the products).
 - ② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [Jump Mode Selector] key while maintaining the regulator turned off.
 - ③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off.
You can reset the new test mode by turning on the reset start.
- * With some products, the new test mode can be reset through the same operations as that employed for shifting to the STBY mode (while maintaining the Acc turned off).

(2) Key Correspondence

Key (Example)	Test mode		New test mode	
	Power Off	Power On	In-play	Error Production
BAND	To power on (offset adjustment performed)	To power off	—	Time/Err.No. switching
▶	—	FWD-Kick	FF/TR+	—
◀	—	REV-Kick	REV/TR-	—
1	—	T.Close (AGC performed) /parameter display switching	Scan	—
2	RF AMP gain switching	Parameter display switching /T.BAL adjustment/T.Open	Mode	—
3	To power on (offset adjustment not performed)	F.Close/RF AGC/F.T.AGC	—	—
6	—	F.Mode switching /T.Close (no AGC)/Jump switching	Auto/Manu	T.No./Time switching

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	FOK = Low continued for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 50 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

The error codes should be indicated in the same way as in the normal mode.

(4) Display of Operational Status (CPOINT) during Setup

Status No.	Contents	Protective action
00	CD+5V ON process in progress.	None
01	Servo LSI initialization (1/3) in progress.	None
02	Servo LSI CRAM initialization in progress.	None
03	Servo LSI initialization (2/3) in progress.	None
04	Offset adjustment (1/3) in progress.	None
05	Offset adjustment (2/3) in progress.	None
06	Offset adjustment (3/3) in progress.	None
07	FZD adjustment in progress.	None
08	Servo LSI initialization (3/3) in progress.	None
10	Carriage move to home position started.	None
11	Carriage move to home position started.	None
12	Carriage is moving toward inner diameter.	Specified 10 seconds has been passed or failure on home switch.
13	Carriage is moving toward outer diameter.	Specified 10 seconds has been passed or failure on home switch.
14	Carriage outer kick in progress.	None
15	Carriage outer diameter feed (1 second) in progress.	None
20	Servo close started.	None
21	Pre-processing for focus search started.	None
22	Spindle rotation and focus search started.	None
23	Waiting for focus close (XSI=Low).	Specified focus search time has been passed.
24	Standing by after focus close is over.	Specified focus search time has been passed.
25	Focus search preprocessing is in progress while setup protection is turned on.	None
26	Focus search preprocessing is in progress while focus recovery is turned on.	None
27	Wait time after focus close is set up.	Off focus.
28	Standing by after focus close is over.	Off focus.
29	Setup (1/2) before T balance adjustment is started.	Off focus.
30	Setup (2/2) before T balance adjustment is started.	Off focus.
31	T balance adjustment started.	Off focus.
32	T balance adjustment (1/2).	Off focus.
33	T balance adjustment (2/2).	Off focus.
34	Waiting for spindle rotation to end. Spindle rough servo.	Off focus.
35	Standing by after spindle rough servo is over.	Off focus.
36	RF AGC started.	Off focus.
37	RF AGC started.	Off focus.
38	RF AGC ending process in progress.	Off focus.
39	Tracking close in progress.	Off focus.
40	Standing by after tracking is closed. Carriage closing in progress.	Off focus.
41	Focus/tracking AGC started.	Off focus.
42	Focus AGC started.	Off focus.
43	Focus AGC in progress.	Off focus.
44	Tracking AGC in progress.	Off focus.
45	Standing by after focus/tracking AGC are over.	Off focus.
46	Spindle processes applicable servo.	Off focus.
47	Check for servo close is started.	Off focus.
48	Check of LOCK pin started.	Off focus or spindle not locked.
49	RF AGC started.	Off focus.
50	RF AGC in progress.	Off focus.
51	Standing by after RF AGC is over.	Off focus.

(5) Display Examples

1) During Setup (When status no. = 11)

TRK No.	MIN.	SEC.
11	11'	11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

Switch to the following displays (A) and (B) using the [BAND] switch:

(A) Error occurrence timing display in absolute time.

An example: Error occurred in 12th tune at 34'56" in absolute time.

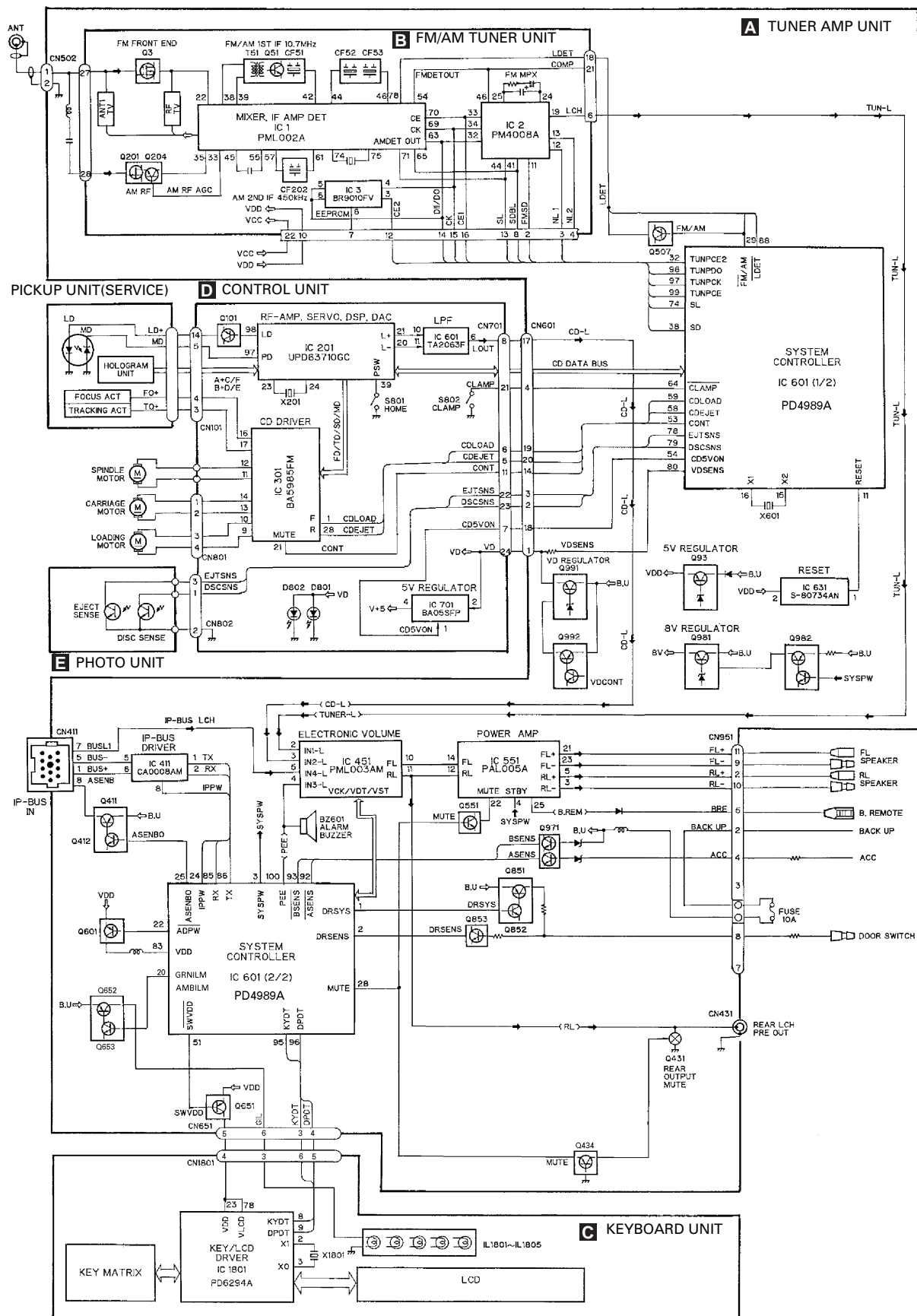
TRK No.	MIN.	SEC.
12	34'	56"

(B) Error No. display

An example: Error #40 (Off focus is detected)

ERROR-40

7.3 BLOCK DIAGRAM

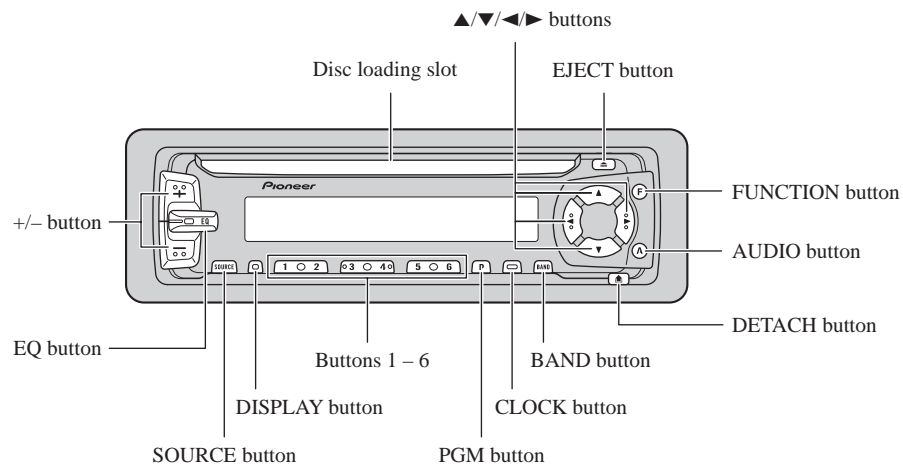


8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

Key Finder

Head Unit



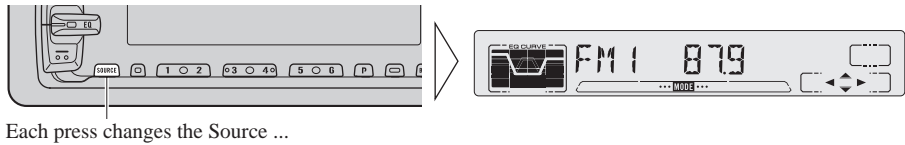
Basic Operation

To Listen to Music

The following explains the initial operations required before you can listen to music.

- Note:**
- Loading a disc in this product.

1. Select the desired source (e.g. tuner).

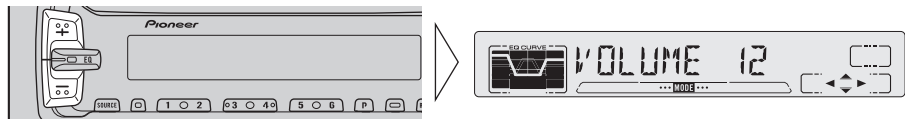


Head Unit

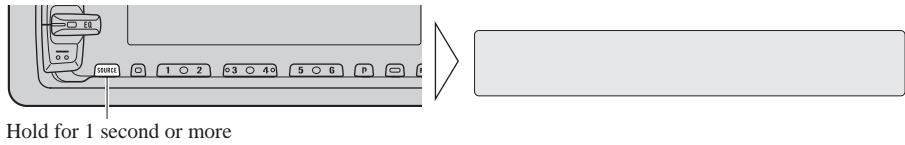
Each press of the SOURCE button selects the desired source in the following order:
Built-in CD player → Tuner → Multi-CD player → AUX

- Note:**
- In the following cases, the sound source will not change:
 - * No Multi-CD player is connected to this product.
 - * No disc is set in this product.
 - * No magazine is set in the Multi-CD player.

2. Raise or lower the volume.



3. Source OFF.



Basic Operation

Basic Operation of Tuner

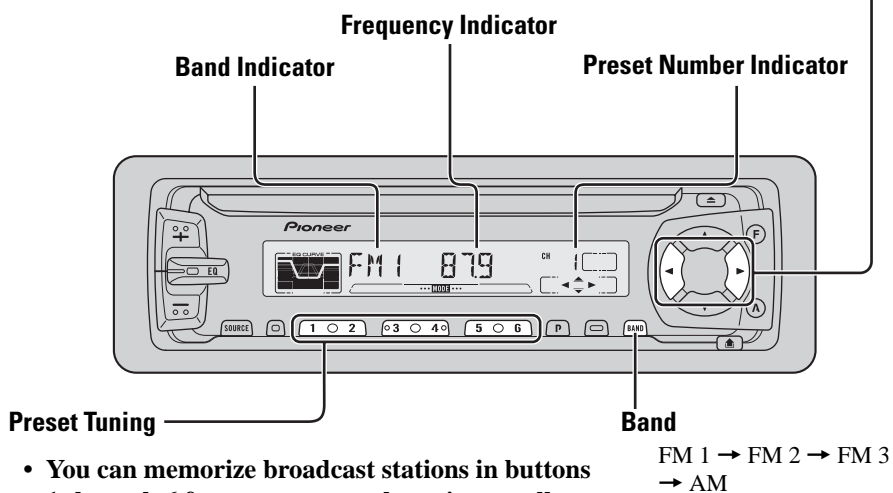
Manual and Seek Tuning

- You can select the tuning method by changing the length of time you press the ◀/▶ button.

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

Note:

- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcasting stations. Seek Tuning starts as soon as you stop pressing the button.
- “◯” stereo indicator lights when a stereo station is selected.



- You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:

- Up to 18 FM stations (6 in FM1, FM2 and FM3) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

Basic Operation

Basic Operation of Multi-CD Player

This product can control one or more multi-CD players. (There are some types of multi-CD players such as “CDX-P630S” which you cannot connect more than one.)

Track Search and Fast Forward/Reverse

- You can select between Track Search or Fast forward/Reverse by pressing the ◀▶ button for a different length of time.

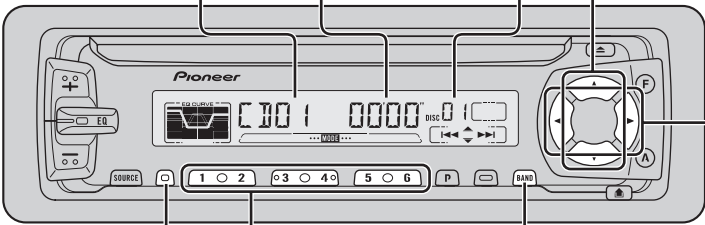
Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing

Elapsed Play Time Indicator

Disc Number Indicator

Track Number Indicator

Disc Search



The diagram shows a Pioneer car stereo unit. Labels with leader lines point to the following features: 'Track Number Indicator' points to the leftmost display; 'Elapsed Play Time Indicator' points to the middle display; 'Disc Number Indicator' points to the rightmost display; 'Disc Search' points to the square button with a magnifying glass icon; 'Switching the Display' points to the 'DISPLAY' button; and 'Switching the Multi-CD Player' points to the 'MCD' button.

Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

Note:

- If you switch displays when disc titles have not been input, “NO TITLE” is displayed.

Switching the Multi-CD Player

Using a multiple connection adapter lets you connect up to three Multi-CD players.

M-CD 1 → M-CD 2 → M-CD 3
(Displayed about for 2 seconds.)

Disc Number Search (for 6-Disc, 12-Disc types)

- You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.

Note:

- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds or longer.

Disc Number Rough Search (for 50-Disc type only)

This handy function lets you select discs loaded in a 50-Disc Multi-CD Player using the 1 to 5 buttons. The 50 discs are divided into five blocks, with each of the 1 to 5 buttons assigned to a block.

- Select the desired block with the 1 to 5 buttons.

Note:

- After completing a rough search, use the ▲ and ▼ buttons to select a desired disc.

Note:

- The multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. "READY" is displayed.
- When a magazine is loaded into a 50-Disc type Multi-CD Player, information on all the discs in the magazine is read.
If you start playing a disc on a 50-Disc type Multi-CD Player before reading of information on all discs has been completed, reading of information stops part way through. This will prevent you from using a number of functions. (If you try and use these functions, "NOT READY" is displayed.)
If this happens, reading of information begins again when you switch to a component other than the 50-Disc type Multi-CD Player.
- If the multi-CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the multi-CD player owner's manual.
- If there are no discs in the multi-CD player magazine, "NO DISC" is displayed.
- "LOAD" will be displayed in the following cases:
 - * If the disc in the extra tray is selected.
 - * If the disc is moved from the extra tray to the magazine.
(Refer to the 50-Disc type multi-CD player owner's manual.)
- You cannot use the "Ejecting a Single Disc", "Frequency Play", "Music Group Play" or "ABC Disc Title Search" functions with this product.

When playing a CD TEXT disc on a CD TEXT compatible Multi-CD Player such as the CDX-P650:

- You can use the following two functions. Refer to Multi-CD Player's Owner's Manual for operation details.
 - * Title display switching
 - * Title scroll
- You cannot switch to the Disc Title Input mode in the Detailed Setting Menu.

Basic Operation of Built-in CD Player

Switching the Display

Each press of the DISPLAY button changes the display in the following order:
Playback mode (Elapsed play time)
→ Disc Title

Note:

- If you switch displays when disc titles have not been input, "NO TITLE" is displayed.

Eject

Note:

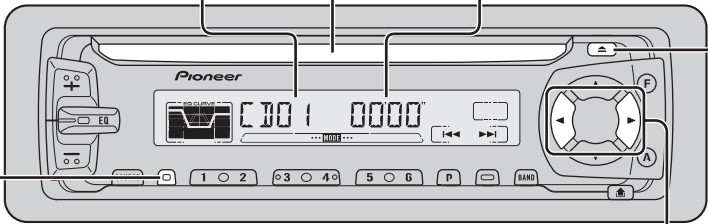
- The CD function can be turned ON/OFF with the disc remaining in this product.
- Discs left partially inserted after ejection may incur damage or fall out.

Disc Loading Slot

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.

Track Number Indicator

Elapsed Play Time Indicator



Track Search and Fast Forward/Reverse

- You can select between Track Search or Fast forward/Reverse by pressing the ◀▶ button for a different length of time.

Track Search	0.5 seconds or less
Fast forward/Reverse	Continue pressing

Note:

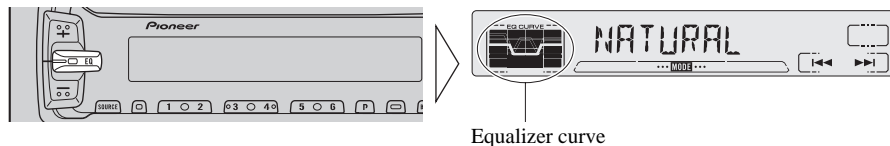
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down. Push the EJECT button and check the disc for damage before reinserting it.
- If a CD is inserted with the recorded side up, it will be ejected automatically after a few moments.
- If the built-in CD player cannot operate properly, an error message (such as "ERROR-14") appears on the display.

Audio Adjustment

Selecting the Equalizer Curve

You can switch between Equalizer curves.

- Move the EQ button up or down to select the desired Equalizer curve.



POWERFUL ↔ NATURAL ↔ VOCAL ↔ CUSTOM ↔ EQ FLAT
↔ SUPER BASS

Note:

- “CUSTOM” stores an equalizer curve you have made adjustments to.
- You can create different “CUSTOM” curves for different sources. (The built-in CD player and multi-CD player are set to the same Equalizer Curve Adjustment setting automatically.)

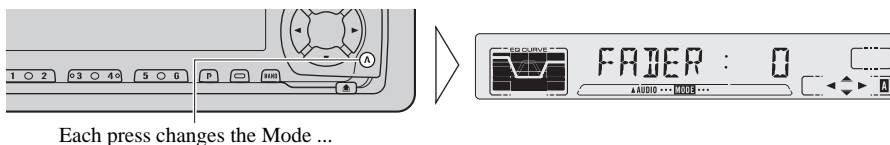
Entering the Audio Menu

With this Menu, you can adjust the sound quality.

Note:

- After entering the Audio Menu, if you do not perform an operation within about 30 seconds, the Audio Menu is automatically canceled.

1. Select the desired mode in the Audio Menu.



2. Operate a mode.

3. Cancel the Audio Menu.



Audio Menu Functions

The Audio Menu features the following functions.

Balance Adjustment (FADER)

This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. Press the **AUDIO** button and select **Fader/Balance mode (FADER)** in the **Audio Menu**.

2. Adjust front/rear speaker balance with the **▲/▼** buttons.

“FADER F15” – “FADER R15” is displayed as it moves from front to rear.



3. Adjust left/right speaker balance with the **◀/▶** buttons.

“BAL L 9” – “BAL R 9” is displayed as it moves from left to right.



Note:

- “FADER 0” is the proper setting when 2 speakers are in use.

Equalizer Curve Adjustment (EQ-LOW/MID/HIGH)

You can adjust equalizer curve settings as desired. Adjusted equalizer curve settings are memorized in “CUSTOM”.

1. Press the **AUDIO** button and select the **Equalizer mode (EQ-LOW/MID/HIGH)** in the **Audio Menu**.

2. Select the band you want to adjust with the **◀/▶** buttons.

EQ-LOW ↔ EQ-MID ↔ EQ-HIGH



3. Boost or attenuate the selected band with the **▲/▼** buttons.

The display shows “+6” – “-6”.



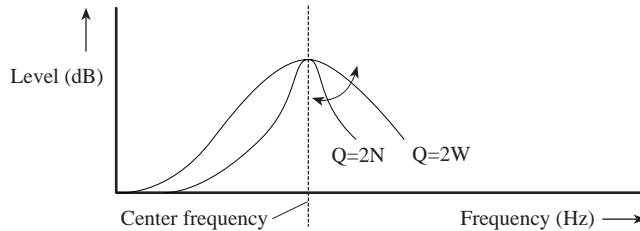
Note:

- If you make adjustments when a curve other than “CUSTOM” is selected, the adjusted curve is stored in memory as a “CUSTOM” curve. Also, the displayed curve switches to that selected before adjustments were made.

Audio Adjustment

Equalizer Curve Fine Adjustment

You can adjust the center frequency of each equalizer curve band (LOW/MID/HIGH) and the Q factor (curve characteristics).



1. Press the **AUDIO** button for 2 or more seconds to select Equalizer Curve Fine Adjustment.

2. Press the **AUDIO** button to select the desired band for adjustment.



3. Select the desired frequency with the **◀/▶** buttons.

LOW: 40 ↔ 80 ↔ 100 ↔ 160 (Hz)
 MID: 200 ↔ 500 ↔ 1K ↔ 2K (Hz)
 HIGH: 3K ↔ 8K ↔ 10K ↔ 12K (Hz)



4. Select the desired Q factor with the **▲/▼** buttons.

2N ↔ 1N ↔ 1W ↔ 2W



Loudness Adjustment (LOUD)

The Loudness function compensates for deficiencies in the low and high sound ranges at low volume. You can select a desired Loudness level.

1. Press the **AUDIO** button and select the Loudness mode (LOUD) in the Audio Menu.

2. Switch the Loudness function ON/OFF with the **▲/▼** buttons.



3. Select the desired level with the **◀/▶** buttons.

LOW ↔ MID ↔ HI



Front Image Enhancer Function (FIE)

The F.I.E. (Front Image Enhancer) function is a simple method of enhancing front imaging by cutting mid- and high-range frequency output from the rear speakers, limiting their output to low-range frequencies. You can select the frequency you want to cut.

Precaution:

- When the F.I.E. function is deactivated, the rear speakers output sound of all frequencies, not just bass sounds. Reduce the volume before disengaging F.I.E. to prevent a sudden increase in volume.

1. Press the AUDIO button and select the F.I.E. mode (FIE) in the Audio Menu.

2. Switch the F.I.E. function ON/OFF with the ▲/▼ buttons.



3. Select the desired frequency with the ◀/▶ buttons.

100 ↔ 160 ↔ 250 (Hz)



Note:

- After switching the F.I.E. function ON, select the Fader/Balance mode in the Audio Menu, and adjust front and rear speaker volume levels until they are balanced.
- Switch the F.I.E. function OFF when using a 2-speaker system.

Source Level Adjustment (SLA)

The SLA (Source Level Adjustment) function prevents radical leaps in volume when switching between sources. Settings are based on the FM volume, which remains unchanged. (Since the FM volume is the control, SLA is not possible in the FM modes.)

The AM, CD, MD and AUX levels can all be adjusted.

The built-in CD player and multi-CD player are set to the same volume adjustment setting automatically.

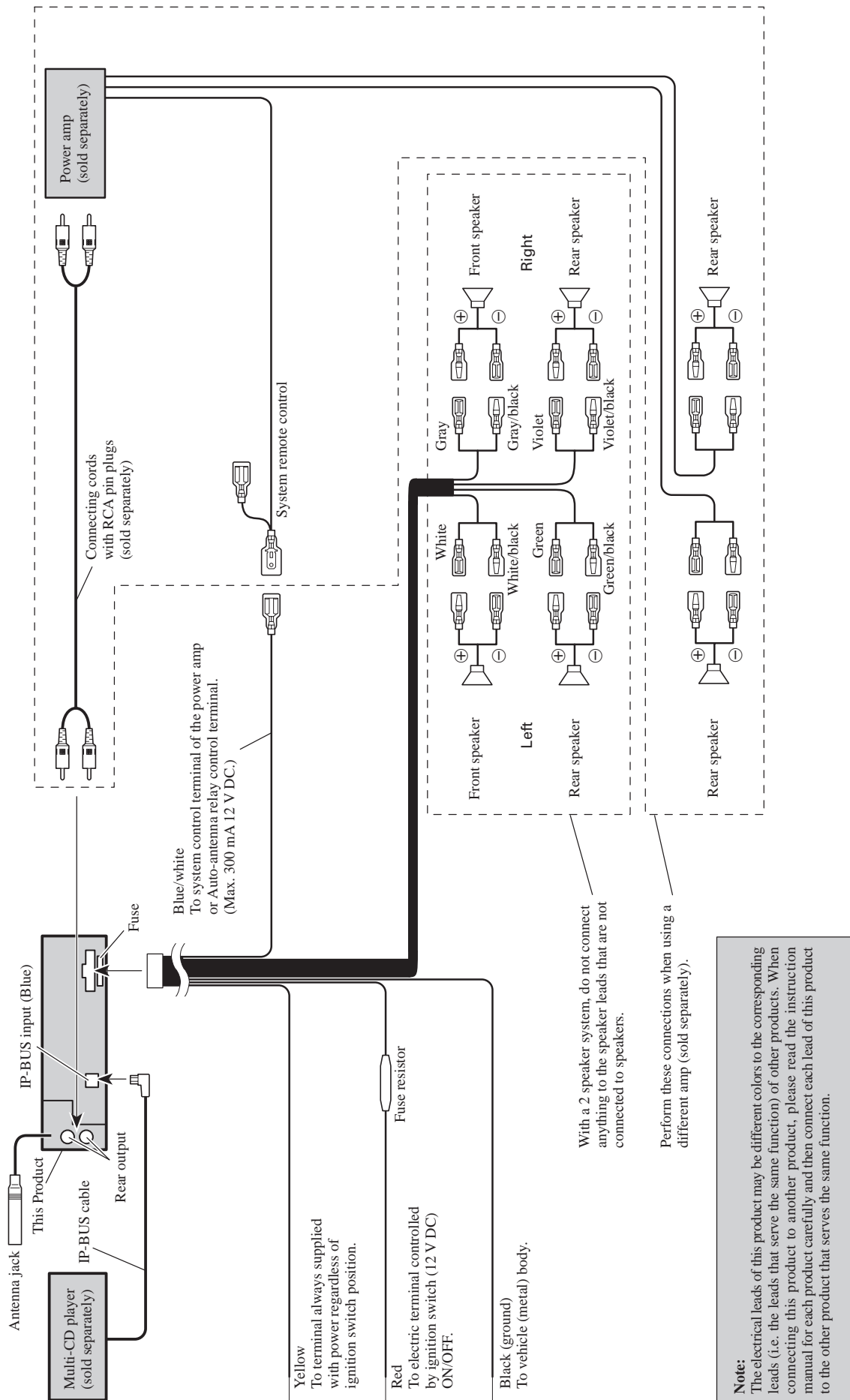
1. Compare the FM volume with the volume of the other source.
(e.g. Built-in CD player)

2. Press the AUDIO button, and select the SLA mode (SLA) in the Audio Menu.

3. Increase or decrease the level with the ▲/▼ buttons.

The display shows “+4” – “-4”.





8.2 SPECIFICATIONS

● DEH-P2000/X1N/UC, DEH-P20/X1N/UC

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions	
(DIN) (chassis)	178 (W) × 50 (H) × 159 (D) mm [7 (W) × 2 (H) × 6-1/4 (D) in]
(nose)	188 (W) × 58 (H) × 19 (D) mm [7-3/8 (W) × 2-1/4 (H) × 3/4 (D) in]
(D) (chassis)	178 (W) × 50 (H) × 164 (D) mm [7 (W) × 2 (H) × 6-1/2 (D) in]
(nose)	170 (W) × 46 (H) × 14 (D) mm [6-3/4 (W) × 1-3/4 (H) × 5/8 (D) in]
Weight	1.4 kg (3.1 lbs)

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	45 W × 4
Load impedance	4 Ω (4 – 8 Ω allowable)
Preout maximum output	
level/output impedance	2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer)	
(Low)	Frequency: 40/80/100/160 Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(Mid)	Frequency: 200/500/1k/2k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(High)	Frequency: 3.15k/8k/10k/12.5k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
Loudness contour	
(Low)	+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid)	+10 dB (100 Hz), +6.5 dB (10 kHz)
(High)	+11 dB (100 Hz), +11 dB (10 kHz) (volume: –30 dB)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IHF-A network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range	87.9 – 107.9 MHz
Usable sensitivity	10 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	15 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA)
Three-signal intermodulation	
(desired signal level)	30 dBf
(two undesired signal level)	100 dBf

AM tuner

Frequency range	530 – 1,710 kHz
Usable sensitivity	18 μV (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.

● DEH-P2050/X1N/ES, DEH-P2050/ES

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions	
(DIN) (chassis)	178 (W) × 50 (H) × 159 (D) mm
(nose)	188 (W) × 58 (H) × 19 (D) mm
(D) (chassis)	178 (W) × 50 (H) × 164 (D) mm
(nose)	170 (W) × 46 (H) × 14 (D) mm
Weight	1.4 kg

Amplifier

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output 45 W × 4

Load impedance 4 Ω (4 – 8 Ω allowable)

Preout maximum output level/
output impedance 2.2 V/1 kΩ

Equalizer (3-Band Parametric Equalizer)

(Low) Frequency: 40/80/100/160 Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB

(Mid) Frequency: 200/500/1k/2k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB

(High) Frequency: 3.15k/8k/10k/12.5k Hz
Q Factor: 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Level: ±12 dB

Loudness contour

(Low)+3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid)+10 dB (100 Hz), +6.5 dB (10 kHz)
(High)+11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IEC-A network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range	87.5 – 108 MHz
Usable sensitivity	10 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	15 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	531 – 1,602 kHz (9 kHz) 530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 μV (S/N: 20 dB)
Selectivity	50 dB (±9 kHz) 50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.